Health and Safety mini network revised

FOLLOWING a pilot computer scheme carried out at the East Anglia office of the Health and Safety Executive, which administers the inspection of potentially hazardous industrial sites, the Central Computer Agency is revising its specifications for an HSE minicomputer network.

The original proposal included the installation of a number of minis via which information gained by HSE factory inspectors would be fed into a central computer for analysis.

This would allow cross-references and other comparisons to be made easily and would make it possible to detect when special visits should be made to a factory on the basis of health and safety reports from inspectors.

However, the pilot scheme showed that some improvement was required.

"No tenders for equipment have yet been made," said a CCA spokesman, "but the expected start-up date is still January 1981."

Commenting on the prospect of using the system, an HSE spokesman said, "When it is operational, the network will enable us to provide a national and internal source of statistics."

Meanwhile, the HSE is also attempting to provide more and more of its guidance material to employers in the form of Prestel "pages".

The HSE believes that it is an "essential tool with which we are breaking new ground. It will make it much easier for employers to comply with the Health and Safety Act."

NEWS IN BRIEF

Benn for Poly conference

THE social effects of information technology will be the theme of a conference at the South Bank Polytechnic next week, at which Energy Minister Tony Benn will be the keynote speaker.

The Polytechnic is making available facilities for the use of working groups that might develop from the conference to study some activities in more detail. Further information from Sean McConnell at the Department of Town Planning, the Polytechnic of the South Bank, Wandsworth Road, London SW8 2JZ. Tel: 01-928 8989.

US may sue IBM

IBM could be taken to court in the spring by the US government for allegedly making "excessive" profits on leasing computer equipment to leasing agencies in 1969 and 1970. The charges have been made by the US government's Reorganisation Board, and IBM has said that it will contest the board's findings and will take the matter to the Federal Court of Claims if necessary.

Futuredata talks

MICROPROCESSOR development systems builder Futuredata Computer Corp of Los Angeles looks like being acquired by GenRad, the test equipment manufacturer. GenRad has agreed in principle to buy Futuredata, which makes the Zilog Z80-based Microsystem family. Microsystems can also support Motorola 6800 and Intel 8080 processors (CW, December 8, 1977).

CDC evacuates staff from Iran

THE future of Control Data's joint venture to manufacture Plato computer terminals in Iran is uncertain following the protracted political turmoil there. All the 30 or so non-Iranian employers of the company, mainly working on sales and leasing, have been evacuated, but six are to return once the climate improves. Computer Terminals of Iran, which is 30% owned by CDC, is staffed by Iranians.

Honeywell's employees working with Isiran, the company which markets Series 60 computers in Iran, have opted to stay, and the company's controls office in Teheran is reported to be still in business. It is staffed by Europeans and Iranians.

Univac's employees have remained in Iran, but the company has shelved plans to build the V77 minicomputer there (CW, July 13, 1978).

Electronic Data Systems of Dallas has cancelled a contract with the Iranian Ministry of Health and Social Welfare for computer services.

The contract, which was due to run from October 1978 to November 1979, was worth up to $20.5 million, but was terminated when arrears on payments from the Ministry reached $5 million. The company hopes to resume work if it can get clarification on the Ministry's intentions, and payment of monies due.

Independent Dutch viewdata service

A MAJOR Dutch publishing house is to launch its own viewdata service alongside the one offered by the Dutch PTT. But the publishing house, VNU, and the two systems may be linked to give users access to information stored on both.

To handle all aspects of its interest in viewdata, VNU has set up a subsidiary, Toegepaste Viewdata Systems, as part of an existing subsidiary, Intermediair, which represents the US government's National Technical Information Service in Holland and circulates a weekly publication to 20,000 graduates.

TVS is therefore well placed to offer Careerdata in the Dutch speaking countries, which it will do under an agreement with Applied Viewdata Systems of London, which developed it for use on Prestel.

Further activities by TVS in viewdata will include providing closed user groups, one of which will be the parent company itself, VNU, which comprises publishing companies all over Holland. TVS also offers consultancy in how to use viewdata, and will organise applications seminars and publish a newsletter.

The system will be installed in the group's headquarters at Haarlem, near Amsterdam, in March and will support 32 ports initially, expanding to 200 or more as the need develops.

Essay competition

IN a competition aimed at encouraging potential authors from the industrial, educational, commercial and public sectors, the Institute of Data Processing Management and Langton Information Systems have organised an essay competition on "The Practical Implications of Distributing Computer Power."

Winning entries will be published in Computer Weekly, and Input Two-Nine, which publishes the Current Aspects of Computer Technology series, will produce a special edition featuring the best entries.

Further information and entry forms can be obtained from: IDPM/Langton Award, Institute of Data Processing Management, 12-13 Henrietta Street, London WC2 8NU.

Share transfer

SYSTEMS and software house Marcol is to buy back the 25% stake in the company taken by the Norwich Union Insurance society in 1976 (CW, July 1, 1976). Shares will be transferred to key executives as well as those who have been with the company for two or more years.

Chance to debate privacy proposals

THE first public discussion of the Data Protection Committee's final proposals will take place at the conference on privacy at the Rembrandt Hotel, Knightsbridge, on January 24 and 25.

The Home Secretary, Merlyn Rees, and Liberal leader David Steel will address the conference, along with many of the leading figures in the field in the UK and abroad.

Sir Norman Lindop, chairman of the DPC, will chair the first morning of the conference, and among the other speakers will be Christopher Layton from the EEC, Kerstin Anner from Sweden, Barrie Sherman of the union ASTMS, and Professor Alan Westin of Columbia University, New York.

The first afternoon will consist of five workshops running concurrently, covering the DPC report itself; computers, privacy and cost; employment records and references; medical and social work records; and police records.

The second day will cover the international situation, and will end with a panel discussion involving, among others, two members of the DPC, Paul Sieghart and Charles Read.

The conference is being sponsored by the National Council for Civil Liberties, the NCC, and the IDPM.

To register, contact the NCCL on 01-278 4575.

Head of GEC Fairchild

THE man picked to head the GEC-Fairchild semiconductor venture in the UK is David Morriott, who is giving up his post as a Fairchild vice-president to take up the position.

Morriott, 44, a native of Northampton, went to the US in 1952 and joined Fairchild in 1965. He has served as general manager of European operations and as manager of the diode plant at San Rafael, California. He became a vice-president in 1974.

He was elected managing director of GEC-Fairchild at the company's first board meeting last month, but the names of the other board members have not yet been released.

GEC-Fairchild is to pay £27 million for Martin Marietta's 20% stake in US terminal manufacturer Bunker Ramo, as a step towards full acquisition. Bunker Ramo terminals are marketed in the UK by GEC's major competitor, Plessey.

Briefing

Super power systems

DETAILS of two new supercomputers, more powerful than anything hitherto produced, appeared this week.

Control Data will announce the Cyber 203, derived from the 100 million instruction per second Star 100, next week, while Goodyear is to build the world's most powerful parallel processor. The latter machine, called a Massively Parallel Processor, MPP, is being built to process data from satellites for NASA and will have 16,384 processing elements and be rated at 8000 mips.

TUC strategy

THE Prime Minister and TUC General Secretary Len Murray are among the speakers set for the TUC Industrial Strategy Conference for Electronics, to be held next week. Over 450 million delegates have registered for the conference, which will aim to promote the industrial strategy.

Seven paid off

SEVEN contract analysts and programmers at Mullard, Southampton, have been given 28 days' notice following termination of in-house projects on Pdp8 minis as a prelude to transfer of the work to newer Philips hardware. The seven won compensation for early ending of their three to 12 month contracts but Philips says its action is within the contract terms.

IBM sales boom

OUTRIGHT sales at IBM reached unprecedented levels in the fourth quarter of 1978, bringing the company record turnover and profit figures. Net profit rose 14.5% to $3,111 million on turnover up 16% at $6,076 million. Fourth quarter profits stormed through the billion dollar barrier for the first time, up 27% at $1,015 million on turnover also up 27%.

£1m investment

AN investment of £1 million, plus £250,000 from the Scottish Development Authority, is to be made by Honeywell Control Systems in its Newhouse, Scotland, facility. The money will be used to establish a new production line to make process control systems, including the TDC 2000 range, and a new microprocessor-based system known as DCP7700. Full story, page 11.

Maths inquiry

THE Committee of Inquiry into the Teaching of Mathematics in Schools has called for evidence from anyone interested in the subject. It is particularly concerned about the basic computation skills of children. The mathematics required for employment, and the mathematical demands made on adults in daily life. Written evidence should be sent to the DES at Room 3/98, Elizabeth House, York Road, London SE1 7PH.

Row over CBE for ICL S. Africa boss

FOR his services to UK exports, John Starkey, the 55-year-old manager of ICL South Africa, has been awarded a CBE.

Comment on the award from the Anti-Apartheid Movement and unions was stern. Mike Terry, executive secretary of the AAM, said, "This award is clearly very misguided. By its action, the British government has identified with ICL's activities in South Africa in strengthening and supporting apartheid there."

Tini Webb, national officer for ASTMS, added, "It is regrettable that anyone actively involved and based in South Africa under apartheid should be granted a CBE."

From his service as a navigator in the RAF's Bomber Command during the war, Starkey progressed through Powers-Samas as a salesman specialising in local government and the public utilities sector, to sales manager of ICL South Africa in 1969. This position he held until 1971 when he moved up to the position of sales director and then in 1972 to his appointment as managing director of ICL South Africa.

● A second ICL man, Roger Hanbridge, director of the company's European division and based in France, has been awarded an honorary CBE for his services to Anglo French trade. He has been with ICL since 1946.

Plessey to use ICL cash for new growth

FOLLOWING the sale of its 21.43% stake in ICL last week, Plessey has taken the first steps in a major commitment to the office systems market. From April 1, Plessey Telecommunications becomes Plessey Telecommunications and Office Systems, and the Communications and Data Systems division becomes Plessey Office Systems.

The announcement of the reorganisation puts the Plessey spotlight on the office market as its main area of growth. But Plessey is determined to be less cautious about the future, even though the group's profits have been hit by poor results over the past few years and it seems that anyone who has been dramatically loss-making for some time. The division has often been rumoured to be a heavy loss maker, though sources close to the company dispute these claims. They state that the division is poorer than the fastest growing company in the operation in the context of the contract.

The year-on-year turnover was about £2 million, with total expected to be over £12 million with over 200 exports. This is a paper placed to be considered to be economically profitable, but Plessey remains committed to its role as a contributor to the cost of R&D.

Some estimate put investment by Plessey in the division at about £10 million over the last three years, but there is still room for further investment. Plessey's often reported cash limitation has led to a reduction in the scope of the operation.

Plessey's confirmation that it talks on some form of joint technical with General Instruments and ICL among others are being discussed was left to point to the obvious way in which this growth could be maintained.

The ICL share sale could help to finance the semiconductor development projects on the system much more cautiously than in the expensive early days.

● Turn to Page 16

IBM gives Series 1 a boost

AIMED at overcoming some user criticisms of early releases of its Series 1 mini, IBM has announced a number of hardware enhancements to the system and is elevating the EDX event-driven executive to the status of a fully-supported IBM product.

EDX will be enhanced with a Fortran IV compiler and run-time library and the increase in status of this executive is regarded by users as of particular significance.

According to one large UK user, EDX accounts for about 80% of live Series 1 users on the US West Coast. "It executes very well and is also easy to install. However, the fact that it features a high-level and user language and is macro driven makes it anathema to some DP professionals", said the user.

Series 1 hardware improvements include a new ultra-compact low cost processor including a CPU and up to 64K words of memory on a single 9in by 7in board costing £3,797. There are also two new medium capacity disc drives, an ASCII programmable multi-line communications adapter, an attachment of the System 34 5250 display terminal, and a new family of tape drives.

Among those welcoming the enhancements was Gamma, which last year formed a Series 1 division. A spokesman pointed in particular to the low cost of memory enhancements, enabling 32K to be added for £290. He said that Gamma would be supporting EDX in addition to its COS/1 Cnbnl system.

Cheaper memory may help to soothe some anxious about the performance and resource requirements of some of IBM's software for the Series 1, notably the RPS operating system and its PL/1 compiler.

Early releases of the PL/1 software were notably core-hungry and the need for frequent overlays slowed compilation dramatically. However, very considerable improvements, sometimes by as much as tenfold were reported by those installing extra core and the associated address translator transient support.

● System 34 enhancements — page 5.

Gareth Jones to be editor of CW

A JOURNALIST well-known to the computer industry, Gareth Jones, has been appointed Editor of Computer Weekly in succession to Malcolm Peltu, who is leaving the paper early next month.

Jones, 30, entered the computer industry in 1970 after graduating in physics at the University College of North Wales. He spent two years as a programmer/analyst with ICL working on Computer-aided design problems at Kidsgrove.

In 1972 he joined the editorial staff of the journal Computer Aided Design, published by IPC Science and Technology Press. Since then he has been responsible for the launch of several journals, including Microprocessors and Microsystems, Computer Communications, and Information Privacy.

COMPUTERVIEW

Will the computer staff famine ever end?

WHILE the UK is poised on the brink of yet another abyss, computing staff can be comforted by the embracing warmth of the reams of newsprint in the computer Press devoted to job vacancies.

For most of the under-30s in the computer industry there will not even be the slightly chilling memory of the brief crisis in our industry in the early Seventies when some computing staff tasted the bitter pill of unemployment.

With applications for computer science courses up to about 50% this year, the message that there is a lucrative and interesting industry with high employment has obviously worked its way through to careers officers and sixth formers.

According to BCS president Professor Frank Sumner, speaking at the recent BCS 79 conference, despite the growth of interest in computer science, there is such a quick de-expertising of people as the technology changes. Those, for example, who grew up with the ICL 1900 in the last decade or so will eventually become a dying breed and there will be fewer and fewer jobs for George 3 experts and more and more for VME/B experts.

However, Professor Sumner said he believed the upsurge in interest in computing would lead to the production of higher quality computer science graduates.

And therein lies the first lesson and the first warning of this Computerview. As Professor Sumner expressed it, "Anyone under 35 in the computer business will have to look warily over their shoulders because there will be an awful lot of good young people following."

The 3,500 children who packed the BCS 79 Fun Fair (CW, January 11) provided a vivid illustration of the seriousness of this warning.

It is particularly relevant in computing technology because there is such a quick de-expertising of people as the technology changes. Those, for example, who grew up with the ICL 1900 in the last decade or so will eventually become a dying breed and there will be fewer and fewer jobs for George 3 experts and more and more for VME/B experts.

The fresh-faced graduate whose first job is on a 2900 system has a start on the older person experienced on George 3 who will have to do a lot of unlearning before learning the new system. Despite the availability of many jobs for the computer professional, therefore, any let-up in the current jobs boom could hit the oldest first.

This kind of threat from the young who are schooled in the newest technology applies primarily to the systems software and operations field. Once a Cobol programmer, always a Cobol programmer, despite the variations on a standards theme. Business systems analysts and high-level language applications programmers are less susceptible to this kind of technological outdating.

However, and here beginneth the second lesson of this editorial, there is a growing realisation that applications systems and software work is far from being the specialist craft we have been led to believe.

It is now a truism in the computer community that there are too many badly implemented systems because the implementors knew more about the computer than the application.

Although much of the government emphasis has been on micros and semiconductor technology, this will inevitably lead on to computing and information technology training in general.

The falling costs of computing power will quickly spread computing awareness throughout the young very quickly, whether it is at schools or through home personal computers. The BCS 79 Fun Fair showed just the tip of the potential interest among young people.

In industry, government and the education system there is also a very quickly growing realisation that a person in one field can quickly be taught sufficient computing know-how to become a good implementor of applications systems.

Professor Sumner said he believed there would be a growth in the number of joint degree courses, linking computer studies with other departments.

As was shown at a conference in Liverpool recently (CW, November 23, 1978), the awareness that good computer systems can be implemented by other than pure maths mathematical genii, leads to two interesting reactions.

Firstly, employers of computing staff realise they can widen the pool in which they are fishing for staff, and can look to non-computer science graduates and staff experienced in the relevant application, coupled perhaps with some computer training.

Secondly, it opens the horizons of those who felt that, because they "didn't like maths at school" — or some equally silly reason — that computing was not for them. The breaking down of some of the myths of computing will increase the supply of available staff.

All this means that the current glut of computer jobs is likely to have a limit and the fresh flow of new talent, together with an awareness among employers that the sources of potential staff must be expanded, will eventually begin to sop up some of the surplus jobs.

There is no realistic way of predicting the timescale for the ending of the jobs boom but it is clear that the end is coming into sight.

And if you feel the warning of this is too speculative, harken to the words of David Firnberg, director of the National Computing Centre (CW, January 11) who pointed out that in Finland there was a computer staff shortage three years ago but he was told last year that there was now a surplus of staff. And in France there are also many unemployed computer professionals.

Those who have enjoyed a comfortable ride on the computer gravy train should begin thinking about the future. A future where, perhaps, the track record of programmers analysts and operators in producing and running good, reliable and effective computer systems will become a sieve to eliminate some of the shoddy software and systems work that has given the computing "profession" such a bad name (see Programmer's Notes, page 7).

Manufacturers, led by IBM's Future Series' aim of making the next range easy to use by the end user, are making more and more effort to simplify user programming. In addition, the government has at last become aware that education, training, and retraining in the skills of using computing and micro technology are as important as producing technical specialists.

FOCUS

Away from the real world

ACCORDING to the recent British Computer Society event BCS 79 (CW, January 11), Living with Computing is a matter of washing machines, electronic casinos, micro robots, badges, stickers and balloons. Potential recruits into the computer industry could well believe they were entering a comic-strip world.

The real world of computing was noticeably absent from the proceedings. Amid the heavily represented academies of learning, the NCC appeared to be sharing a stand with NCR, and the police with Exeter Health Centre. Interfacing with a model railway train, ICL featured The Junior Computer 1500.

When it comes to careers in DP, even the BCS themselves have doubts. One career leaflet ends by mentioning that there are opportunities for systems personnel to transfer out of the computer service function — hardly encouraging.

However, the show did contain some surprises, apart from the notable absence of the NCC Threshold team.

Rather overlooked was an attempt to display how DP personnel live with computers. But had the organisers approached the IDPM, a very realistic installation could have been created. This would have featured harassed DP management, aggressive users, limited budgets and time, assorted engineers, hardware and headaches.

For the DPM, living with computers is seldom a joke. Technology has to be masterminded — slot machines being very much limited to coffee, robots to the data prep section and competitions to the weekly CW Puzzler. A structural walk-through at the exhibition in no way compares with the real thing. For a start, DP personnel will more likely be staggering under large piles of continuous stationery and complies, or shifting disc packs around the site.

The DPM's office will have a queue outside equalling those seen at the M1 service station in times of fuel shortages. First in line will be the senior systems manager. Timescales for the new application will have to be revised unless additional resources are allocated without delay. Since starting the project, the user's requirements have escalated. Files, volumes and complexities have grown. It is the responsibility of the DPM to inform the user of unavoidable delays.

Next in line will be the senior programmer. Unless the team is given special productivity payments, the future could be bleak. The gas board down the road is currently offering not only guaranteed overtime but substantially higher basic pay.

Not far behind will be the ops manager. Unless that new line printer is ordered soon, his team cannot be held responsible for delays and hold-ups. Furthermore a complete re-assessment of shift rotas is long overdue. Perhaps the DPM would like to be present during an all-night shift?

By custom, last in line will be the site service engineer. Unless the installation can provide undercover parking for his new car, he will have to respond to out-of-hours calls by public transport. For DPMs, living with computers is far from fun.

1984 and all that . . . . .

COMPUTERS and "silicone" chips are the latest fashionable talking point for pundits, public figures, national and provincial Press and broadcasting; and the talk is often very silly indeed.

Contributions from readers are welcome — we will pay £5 for each howler we print.

Today we invest a lady from India who can do everything this half-million pound computer can, and nine times out of ten she can do it faster. — Tommy Boyd, the presenter, putting a dial-up computer on Magpie, Thames Television.

THE giant US services company, Automatic Data Processing, is to enter the market for large-scale online computing with a packaged commercial system based on Hewlett-Packard's Series 3000II. ADP has signed a contract with HP which "could grow to a level of $25 million" and expects to make first deliveries early in 1980.

The new venture parallels ADP's launch last year of AD Onsite, a packaged hardware software system based on a DECsystem 2020. This, however, is an adjunct to the firm's time sharing service and thus addresses a completely different market from the new system which is intended for online applications.

The new service will be restricted initially to the New York metropolitan area and is likely to be extended to that for several years. It will be offered by ADP's Business Systems Division, an operation completely separate from the time sharing service for which company is best known.

Ed Moran, a lawyer for the FTC, says that many students enlisted for courses and then found that the courses did not provide what they expected. Many schools, however, required that fees be paid in advance and gave no refunds.

The Business Systems Division is already in the market online application systems in US, with a service based on Microdata Reality. Customers can opt either for a contained system or can be given terminal access into shared system run by ADP.

A company spokesman said the new systems would be in parallel with the Microdata based equipment, and the firm did not signal the discontinuation of the earlier line.

He added that ADP's extra commercial application system could be made to run compatibly on either system.

Scots deal a severe blow to the newspaper technology revolution

THE revolution in UK newspaper technology, centred now around The Times dispute, has taken a severe blow, after a concession by management at the Glasgow Herald that journalists will not do their own keyboarding on the paper's new computerised production system. It is this issue of "journalistic front end" which is at the root of the current impasse at The Times, and which shows no sign of being broken (CW, November 23, 1978).

Journalists at the Glasgow Herald, on the other hand, are unhappy that direct input is not to be brought in, because they had been promised extra money to use it. Consequently they have gone on strike, stopping production of the paper.

Glasgow Herald management is refusing to comment on the situation, but it is understood that installation of a computer-based photocomposition system with VDUs for input of text will go ahead, the VDUs to be operated entirely by former linotype operators working from paper copy, rather than by the journalists themselves, who will continue to use typewriters.

About £10 million is being spent on new hardware and on converting the old Scottish Daily Express building to house it.

Composing room staff of the Herald and its sister paper, the Evening Times, was to have been cut from 237 to 88, but now only about 40 jobs will go.

At The Times, one of the biggest unions, Natsopa, which covers press operators and clerks, has joined the compositors in refusing to talk to management until notices have been withdrawn and those who have lost their jobs reinstated.

Ken Wiltshire, of Natsopa, said they were prepared to talk about it reducing manning levels, but only so long as no members had actually been sacked. Thus prospects for reopening negotiations at The Times look bleaker than ever.

About 800 staff have been laid off at The Times so far, with about 100 more joining them each week. Nearly all the Natsopa members have been found jobs on other newspapers. The press operators are doing casual work on other papers which have increased their print runs to fill the gap left by The Times, and the clerks are mainly employed in Fleet Street or magazine offices nearby, where "temps" are being displaced on instructions from the union.

On the other hand, the compositors' union, the NGA, is not allowing its members to take other jobs, but is paying them dispute benefit on the grounds that they have been victimised.

Journalists on The Times have commissioned a study by the consultancy Job Ownership Ltd on the feasibility of converting the paper into one or more workers' co-operatives.

US tightens control of private DP schools

IN the US, the Federal Trade Commission is proposing to enact regulations over privately-owned vocational schools, in particular computer schools, following complaints from consumers about fraud and abuses.

The rules would give students the chance to drop out of courses after they start, without losing money in tuition fees.

Under the proposed rules, there would be a 14-day trial period at the start of each course during which a student could drop out without cost, and those giving up after that would receive a pro rata refund.

Schools would also be required to publish statistics of job placement and salaries of their former students.

Moran said that the FTC was particularly concerned to prevent schools from recruiting students according to their eligibility for government grants.

Bernard Ehrlich, of the National Association of Trade and Technical Schools, said that the rules on refunds would push up fees for other students, as the schools had to budget for the number of students who registered at the start of courses.

"If a student drops out, you can't drop an instructor to make up for the tuition loss," he said.

Union concern over VDUs

ADDING to the controversy surrounding the health hazards facing VDU users, TASS, the engineering staff union whose members both make and operate the units, has issued a paper, entitled the Health Hazards of Visual Display Units.

It points to the problems of clerical workers, many of whom are now expected to operate the devices. It states that clerical work has to be performed in bright light but that VDUs are best viewed in shady conditions.

The paper says that the union is concerned about hazards relating to eye fatigue, stress, poor posture and radiation. In the latter case, it stresses that the units should be serviced regularly by qualified engineers, so as to minimise the danger.

French investment plans

SYNTEC, the French trade association for bureaux, software houses, and consultancies, has expressed satisfaction with the French government's plan for major investment in computing and microelectronics (CW, December 14, 1978).

The French services industry, the largest in Europe, is particularly pleased that its importance has been recognised and that contracts for Ministry of Industry funding for expansion have been signed with service firms along the same lines as previously for mini and peripheral manufacturers.

The bureaux, however, are worried that the French PTT, having got involved in data communications, is to try to expand into providing data processing.

Downtime
by Chata

Great fun for the kiddiewinks

APART from one's not being able to move in the crush of people, the BCS Fun Fair was a most jolly affair. (See CW, January 11.) I must say I felt slight twinges of impending old age, listening to all those pretty little teenyboppers chattar about ferrite cores, run-time compilers, and so on. Still, it was a great opportunity for the frustrated showman in the industry to exhibit themselves!

Berney Gibbens of CAP was really in his element, doing all the barking over the Tannoy and slapping stickers on every cheet within reach. CAP was very much in evidence, as it can hardly fail to be when represented by Dick Waller (who is getting on for seven feet tall).

I had a startling experience when talking to Dick on the Byte Shop stand. Now, I am on the tall side myself, having suffered many a bruised crenium from doorways in my time, so I am not used to meeting people who are taller than me. Imagine my surprise when Gerard Talaucher from the Byte Shop staff stood up to join in the conversation and started talking eyeball to eyeball with Dick. Quite a salutary experience it was, straining to catch the words. I decided that the computer business is definitely looking up.

One noticed on looking up that the ceiling was completely covered with balloons. Two girls from SPL were having a jolly, and very busy, time squirting helium into balloons and handing them out to the clamouring kiddiewinks, who promptly let go of them, I suppose because they were open-mouthed with excitement at all the exhibits. Mind you, the most popular stand was all the pub TV games.

Character Design Dept.

"Look, everyone: I've invented a new character — a hexadecimal point!"

All the dirty bits

LIFE has been imitating Art again. Following my speculation last week about computarised *sex*, we spotted an advertisement for a Soho cinema club showing a film called "Computer Game". Arming himself with his company-issue dirty mac, my pornography correspondent set off to investigate.

He cama back threatening to sue under the Trade Descriptions Act. Apart from being positively the worst film he had ever seen, it contained no computers whatsoever. What a disappointment. What story line there was concerned a man who ran a bogus computer dating service. In order to entice girls (and others) up to his den. I will draw a veil over what went on when they got there; what o pity the film did not as well — it was very boring.

There was one memorable variation on an old line: "Come up and see my computer!" The girl was obviously so taken by the man's charms that she failed to notice when they arrived that there was no computer to be seen; maybe it was one of these new-fangled microprocessor jobs that are almost invisible.

Quote from a disgruntled, and thirsty, John Race, of the BCS Micro group, vainly trying to attract the attention of the coffee-shop waitress during the BCS Fun Fair: "That woman would make a great operating system. 'You can thump your Escape key as much as you like. You needn't think you'll get any response out of me while I have ten interrupts pending. I might just give you a back arrow or two . . .' " He got his glass of milk eventually but than there was no end of trouble with the usage accounting routines.

Bandwagon driver

IAN LLOYD, the Conservative MP for Havant and Waterloo, was making some smug "I told you so" noises at a conference on micros recently. Other MPs used to regard him as a crank back in the Sixties when he first started asking, "What are we going to do about the computer?"

Now things are different. At the time of the Horizon programme on micros last March, Lloyd said, "You could actually hear the bandwagons changing gear all over Westminster."

Lloyd suggested some titles for the talks a selection of his prominent colleagues would give if asked to pronounce on the subject. Eric Heffer would expound on "The microprocessor revolution— how to stop it". Harold Wilson's subject would be, "The microprocessor revolution — why Tony Bann bungled it". Tory ex-leader, Ted Heath, Lloyd suggested, "The microprocessor revolution — why Mrs Thatcher must go".

The viewdata age: Power to the people

By Adrian Stokes

Millions of people will shortly have access through their domestic TV sets to the powerful technological resources of viewdata in its various forms. The significance and relevance of this development is here assessed by Dr ADRIAN V. STOKES, author of a new book, Viewdata: A Public Utility, published at £9.95 by Input Two-Nine Ltd, 7 Banstead Road, Purley, Surrey CR2 3ER (Tel: 01-668 6281).

IN recent years, the computer industry has been revolutionised by the impact of microprocessors but the effect on the general public has been less noticeable, although in the last year there seems to have become more awareness of the silicon chip. The major application of the technology so far appears to have been in the field of digital watches and clocks and items such as electronic door chimes.

However, within a very short time, it is likely that there will be a very significant impact through teletext/viewdata where such technology is introduced into a television set giving a very powerful tool to millions of people. In this context, millions is certainly not an exaggeration, since the Post Office's projected figures for the growth of its viewdata service, Prestel, give a market of some three million sets by 1983. Of these, about 20% are expected to be business users, the remainder domestic customers. The cost of a suitable television set is now around £700 and, as happened with colour television, the cost will probably plummet as the market expands.

The public service Prestel is just getting under way but although there have been some articles covering technical details of the system (and of the broadcast teletext system, such as the BBC's Ceefax and ITV's Oracle), little attention has been paid to the effect that such a system will have on both the domestic and business markets.

In the domestic market, Prestel will give a user, in his own home, access to a large database. Although the size of the viewdatabase is potentially unlimited, it is likely that each Prestel computer will have access to about a quarter of a million pages of data (where a page can be considered to be one screenful).

While this is a very large amount of data, it is by no means infinite and hence its principal role is likely to be as a first line of inquiry rather than the fount of all knowledge. Even with that relatively limited role, it will replace a large number of disparate sources of information and will provide a quick and simple user interface to that data.

In many cases, it will be possible to get all the required information via Prestel; in others it will not, or it may be presented in a convenient form.

For example, if a user wanted to know the time of arrival of a train, Prestel would be very convenient since the data could be found very quickly and the user has to copy a small amount of information. On the other hand, if the user wished to find an Act of Parliament, Prestel would probably allow him to find the appropriate Act and determine that it was the one he required. But until some local storage medium is provided, it would be impractical to copy all the information and the user would have to rely on more conventional methods to obtain it.

In this case, it is obvious that one ideal location for a Prestel terminal would be a public library, probably on a "coin-in-the-slot" basis.

Viewdata is, as opposed to Teletext, is an interactive medium and this facility is again likely to have a significant impact. Perhaps one obvious use is the provision of games such as noughts-and-crosses, Star Wars etc! Although scarcely likely (to judge from the sales of television toys already) that such usage might form a considerable part of the total usage of the system.

On a rather more serious note, it is clear that the system can provide, by means of the interactive facility, access to many of the functions of a computer, although the majority of users will be restricted by only having a numeric keypad (cf programmable calculators).

Although the full facilities of a computer would not be provided, the facilities that could be provided are likely to be more powerful than are obtainable by use of a calculator, and are likely to be similar to those provided by small "home-brew" computers.

Another obvious use of the interactive capability is the provision of "response frames". A supplier of information (an "information provider") sets up a special type of frame which has relatively limited role, it will area where the user can insert information. When he has completed the frame, he checks it and then, if correct, "sends" it to the IP who will then take the appropriate action, for example, sending goods and debiting the cost to the user's credit card.

A rather more sophisticated use of the interactive functions is "telesoftware", in which an entire microcomputer is contained in the terminal and software can be "down-line loaded" into the micro. Of course, for standard programs, teletext may be used but viewdata gives the user the facility of writing his own programs. Some experiments have been carried out on this concept and some programs have been transmitted over the broadcast services.

What of the business user? The uses of viewdata are perhaps not as obvious as they may appear at first sight, since in many cases either a dedicated system or perhaps no system at all is more cost effective. However, between these two extremes, viewdata can fulfil an important need, particularly as a means of communication between organisations which have no direct links or common systems.

In addition, of course, it provides a very convenient means (provided the projections of the number of users are accurate) of advertising to the public at large and perhaps one can now see that, whether in the domestic or business market, viewdata can perhaps best be regarded as another form of publication with the additional advantage over other means that it can disseminate information almost immediately.
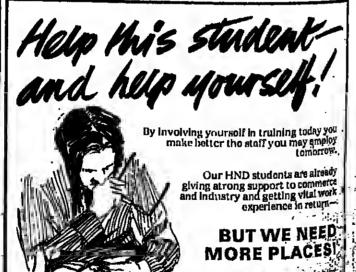
There is one other area where viewdata has great potential, and this perhaps exemplifies uses to which the system can be put in the future. This area is the use for disabled people. For physically disabled people, it is quite clear what the advantages are — access to data which might otherwise be totally inaccessible, the ability to order goods and services without moving from home and so on.

However, it has many uses for other groups of disabled people, such as the deaf and blind. In the case of the former, it provides a means whereby they may communicate over the telephone (using, of course, an alphanumeric, rather than a simple numeric, keypad) and the Post Office has demonstrated a rather elegant system for such use. It is perhaps worth mentioning that the original proposal for teletext envisaged it as a means of subtitling television programs for deaf people.

It may sound odd to suggest that viewdata may be used for blind people since it is essentially a visual medium but it does not appear to be too difficult to interface a voice synthesiser into the system thereby giving a vocal representation of the data, and some experiments are already in progress.

This year will see the start of the Prestel public service. While the concepts and technology used in the system may not be earth-shattering, it is probable that its impact will be very far-reaching, probably far more so than when the system was proposed at the beginning of this decade.

VIRGINIA FIRNBERG

*Some paper, a flashy badge
and goodness knows what else
And the badge on my cap I will pimt*

*I woke up in the morning
in my seven and tempting bed
To find I have to go
In the computer thing instead*

*Gloom, Gloom, impending doom
I'll have to find an excuse
But I can't think of any
that are worth a penny
So I fill my head with those*

*Dressed, washed and breakfasted
I make my way to the car
The traffic's tough
And I'm feeling rough
Now we've got this far*

*But what a surprise
when I open my eyes
And go through the door to the show
for it's not what I thought
When I lay in my bed and found I had to go*

*My gloom and despair fades
in the car
as I retired to bed
Why:
"Computers aren't so bad after all"*

IBM announces more communications software for System 34

SIGNIFICANT additional communications software has been announced by IBM for its System 34 small business system.

Available in the first quarter of 1980, the enhancements to the operating system enable networks of System 34s to be set up using the SDLC communications protocol. Networks can be both point-to-point and multipoint. In the latter case one System 34 serves as the primary station, and communicates with secondary System 34s as a collection of logical point-to-point links.

The SDLC facility is usable only between programs written in Cobol or RPG II. Up to 64 concurrent sessions in both directions can be set up.

A 3270 program interface is also on offer, which enables the System 34 to emulate the 3271 and communicate with an IBM 370 host. The interface allows a program to program communication using 3270 protocols, and up to 32 parallel sessions between RPG II, Cobol or Assembler programs are supported.

The interface does not, however, enable a 3270 display terminal to be attached to a System 34.

The announcement also includes several enhancements to the System 34 Cobol, including additional syntax for read-write verbs, and verbs for the acquisition and release of workstations.

ICL waits for US decision

THE issue of whether ICL can sell mainframes incorporating US-made Intel microcircuits to the UK Atomic Energy Commission without prior US government approval has been referred to the Department of Commarce (CW, January 4).

ICL says that the Department has promised an early reply but that it is still studying the case.

Earnings up

SECOND quarter revenues to December 10, 1978 of $168.2 million, a jump of 42% over the same quarter of the previous year, have been recorded by National Semiconductor. Net earnings on this total $8.1 million, a rise of 43%. This gives National a first half revenue for fiscal 1979 of $363 million, with earnings of $1.88 million.

Babycham planning application loses its sparkle

A PROPOSAL by Showerings, makers of Babycham, to build a new computer centre in Shepton Mallet, Somerset, is threatened with rejection by Mendip District Council Planning Committee.

Although the committee has not yet met to decide the matter, it has been suggested that because the proposed site falls within a conservation area, building permission may not be granted.

A site visit by committee members was planned for December but this had to be postponed due to bad weather. A further meeting to decide a date was held earlier this week after Computer Weekly had gone to Press.

No details of the applications or systems that the centre would feature have been released by Showerings, which is part of the Allied Breweries group.

If the district council approves the proposal, there would still be one hurdle to beat: the larger Mendip County Council has the final say.

"All we can do without the county council's authority is refuse the application," said a district council spokesman.

No plug-compatible users in IBM CUA

By Keith Jones

PLUG-COMPATIBLE CPU users look like being left out in the cold by the IBM Computer Users Association, following a decision by the CUA Council not to propose a change of rules to allow them membership. Scus, the technically oriented group for higher IBM users, has also decided that it prefers to exclude non-IBM CPU users, at least for the time being.

The CUA Council's decision was based on the results of a survey of members which was initiated last summer (CW, August 31, 1978) and carried out under the direction of the CUA deputy chairman, Graham James of Empire Stores.

According to a CUA spokesman, the decision means that the council will not propose a change to the conditions of membership at the CUA annual meeting in April. But he pointed out that a motion could be tabled by an individual member at the meeting so that it was possible that the rules of membership might still be changed.

The main condition of CUA membership is that a user should have at least one IBM computer installed or contracted for. But the machine does not have to be a mainframe, so that a user who has replaced all his IBM mainframe hardware with plug-compatible kit can qualify for membership if he has a Series 1 minicomputer, for example.

However, each application for CUA membership is considered on its merits, so that an Amdahl or ICL user who happened also to have a Series 1 would not automatically be admitted.

A user with at least one IBM CPU does qualify for CUA membership, even if the rest of his CPU hardware is plug-compatible.

A spokesman for Scus told Computer Weekly that the group had discussed the question of admitting users of plug-compatible CPUs but had decided against allowing them to join at the moment. However, the situation could change in the future if IBM unbundled its software charges in a big way so that plug-compatible CPU users also became major IBM software customers.

The conditions of Scus membership at the moment are that a user must have an IBM 303X, u 370 or a 360 processor, provided the latter is a 360 Model 44 or bigger. Scus, which is the European counterpart of the US group Share, has about 200 members, most of them big technically-oriented users.

Guide, which has about 1,000 members in Europe, mainly commercial type organisations, stated that user that it would not admit non-IBM users (CW, August 10, 1978).

Comten in merger talks

COMMUNICATIONS equipment manufacturer Comten of St Paul, Minnesota, is holding talks with an unnamed major company which could lead to a merger.

The unnamed suitor is likely to be ITT, which markets Comten communications processors in Europe as the ITT 3805 and 3807. The processors are part of ITT's portfolio of Communications Network Architecture products for IBM 370 and 3030 series users, and ITT has already acquired Courier, the company which manufactures the CNA 3280 series of displays which are compatible with IBM's 3270 line.

Comten says it has rejected the company's first offer for acquisition, but that talks are continuing. Other suitors are also in the wings, but the most likely contenders are companies like Racal, Northern Telecom and possibly Siemens or GEC.

● In France, ITT's CGCT subsidiary has sold its message switching division to Thomson. The division employs 115 people, and has 20% of the French market, selling its own message switches, which are independent of the ADX line manufactured by STC in the UK.

Govt seeks evidence on formatting and storage

EVIDENCE from the computer community on techniques for formatting and storing archival records is being sought by the government's Committee of Inquiry into Public Records.

The committee is charged with reviewing the arrangements for selecting and preserving public records, particularly in the light of technological changes. A great deal of government information already comes from computers, for instance at the Central Statistical Office, and views are being sought on how access to this can best be provided after it has been handed over to the Public Records Office for preservation.

Anyone wishing to give evidence to the committee should send it to Graham Aylett, the committee secretary, at 08 Parliament Street, London SW1 not later than April 30, 1979.

CDC loses control of Elbit

ISRAEL'S only computer manufacturer, Elbit, has passed into local control following an issuing of new stock representing 25% of the company. The issue of shares raised $5.3 million, and the effect was to reduce Control Data's stake in the mini-maker to 37%.

Control Data previously had a controlling 51% in Elbit, and the Haifa-based company supplies its System 17 minicomputers OEM to CDC for sale as the CDC Cyber 18-17 model in the Cyber 18 line.

Wang's first-half figures at record levels

STRONG demand for the powerful new 2200 VS database-oriented business computer, and rapid growth in word processor sales, have pushed Wang's first-half turnover and profit figures to record levels. For the six months to December 31, Wang's net profit rose 86% to $9.7 million on turnover up to 57% at $130.8 m.

The company reports that sales of word processors in the US in the first six months of the current financial year were greater than those recorded in the whole of the last financial year, when business amounted to $4.2 million.

Backlog of orders currently stands at $117 million, double the figure a year ago, and 31% up on the figure for the first quarter of the financial year. Overall, business was particularly strong in the October to December quarter, with net profit up 82% and turnover up 60% compared with the same period in 1977.

The company will be spending $14 to $15 million on research and development in the current year — 75% more than last year.

GILB'S MYTHODOLOGY

To keep up to date, get a technoscope

HOW does the computer professional keep up to date with the rapidly changing technology, while giving priority to immediate job needs?

The question must be an important one, since I find that my course participants usually ask it of me at the first lunch of every course I hold. As a consultant, writer and teacher it is in the nature of my job that I must try to keep right up to date.

I am pretty sure that my personal approach is not for everyone, and I don't feel like pretending I know the right answers for each individual. But I hope that if I describe some of the approaches I have found useful during my 20 years in the data processing field, some of you will find a few ideas you can use.

One of the first things I question is the goal of being "up to date". At least this deserves careful qualification. My grandfather, it is said, rarely wasted time looking at motion pictures less than 25 years old. His reasoning was that if they were still being shown, they must have demonstrated some merit. Certainly this story reminds us that we need some efficient mechanism for selecting the things we are going to learn about.

There is clearly no way any of us could absorb even 1% of all the published material in or related to our field, not to mention less formal information sources. Maybe if we limited ourselves to learning only those principles which had survived for at least 10 or 20 years, we would be using our time well.

Consequently, one of my first principles of keeping up to date is to refuse to spend too much time with the latest fad or announcement, and to spend time learning about the many things which are clearly of a more classic nature.

For example, in the programming area, the subject of quality assurance (inspections, reviews, team reading of programs) is in many ways a "pop" subject. But we all know that the concepts of quality assurance and auditing are very important parts of equally complex disciplines, therefore I have concluded that it is worth learning as much as possible about them.

Similarly, questions of motivation and human psychology are emerging as really important issues in software

ware project management, and we can safely assume that any investment in learning in these areas, from psychologists, conventional management literature or even perhaps our computer colleagues, is bound to be of benefit.

Another area to which I have devoted some attention is the measurement of software qualities. Again we have the classic management and engineering experience that measurement ability gives us control, knowledge and progress. This motivates me to invest my time in learning measurement technology from other disciplines, and even some of the primitive concepts emerging from computer disciplines.

This leads me to another subject dear to my heart. It is far more important to learn about perception techniques than to waste time listening to someone else's personal judgment.

I'll get back to this subject sooner or later (there is so much more to say). But I feel the most important points lead to be given first. In an attempt to summarise I'll list my steps for managing the ever present stream of facts and fiction.

● State multiple goals clearly and as measurably as possible.
● For each potential solution (new technique) ask first, before getting into mechanical how-it-works detail, if measured facts are available in the goal areas.
● If such facts are available, go further and evaluate their degree of satisfaction for the goal areas.
● If such facts are not forthcoming: STOP, don't waste your time. Challenge whoever is selling the ideas to provide such facts.

Get yourself a technoscope: it is the best help in keeping up to date with a minimum of effort. I have to use my technoscope daily to survive in this jungle.

The tools are there, and I believe that they have been known to us for decades in the case of some of the better management and engineering tools, and for centuries in the case of some of the more classic thinking and perception tools.

Until an adequate set of perception technology tools has been mastered, I don't believe you are justified in spending your time in "keeping up to date". Once you have mastered the basic art of seeing the qualities of any technology or system, no matter how new or

complex, you have what I like to call a "Technoscope".

This is a basic tool for examining the "future shock" rate-of-change pouring in over us. You will have a mechanism for selecting those new technologies which are of potential importance to your daily work. And, more important, you will have a reliable mechanism for deciding NOT to study further most of the technical details being flung at you.

I find that I have this capability, and that it is easily picked up by others. But I have had to teach it to myself over the last 10 years, it was never offered to me in the data processing business. The technoscope is not just a tool for me, but is for sharing my understanding with others, and beyond that, giving others the power of seeing things which I have not yet learned.

APL*Plus available for in-house use

THE options available to those wanting to run APL in-house have been extended considerably by Scientific Time Sharing Corp and its UK operation, APL*Plus Ltd.

In addition to introducing a packaged APL minicomputer system (CW, January 11), STSC has announced that it is to market the software alone for in-house use. This will include not only the firm's proprietary APL*Plus but also a series of enhancements to IBMs VSAPL.

Scientific has sold APL*Plus

to customers before for in-house use, but not for some years. Its re-introduction now as a software product complements the availability of the software as a component of the Quad 100.

As on the Quad 100 system and STSC's Amdahl installation at Bethesda, Maryland, the software depends on the support of IBM's OS/MVT operating system. On a larger in-house machine, though, users will have the option of running MVT as a virtual machine under VM/370.

At the same time, the firm has strongly hinted that VSAPL will be the basis for most of its future developments. According to the UK managing director, Michael Branson, it was possible to envisage its eventual enhancement to the point where it would match APL*Plus in facilities.

Branson also clarified STSC's plans in the systems business. While the Magnuson-based machine would be the first to be offered in the UK, it was only one of several 370-compatible processors that might be used in the future. All the systems, though, would share the name Quad 100.

In addition to selling its system software for in-house use, STSC will also be making available its proprietary applications packages, including the Financial Planning System and the Comprehensive Manufacturing Control System.

The restriction of APL*Plus to IBM's non-VS operating systems is thought to be the principal reason for STSC's decision to offer VSAPL enhancements.

The company has been running a VSAPL service in parallel with APL*Plus for about a year and in the first software product release has made available features for formatting and file management. These will run under the control of VM/370 as an "interactive processor."

Production control thrust by Informatics

FURTHER confirming its commitment to the applications software market, Informatics has created a new corporate post of vice-president, application products, and has at the same time reaffirmed its interest in one specific application area, production control software.

First to take up the new post will be John Splavec, who was formerly vice-president responsible for US and Canadian sales. He will now be responsible for the development of the application product line, and the expansion of international markets for these products.

One application area in which the firm is likely to be particularly active is manufacturing industry.

Although it has previously been disappointed in its marketing of manufacturing software, notably the Production IV system (Software File, August 3, 1978), Informatics still sees this as a large and relatively undeveloped market.

It intends, therefore, to continue to offer consulting services to manufacturing industry and will continue to market Production IV, though on a different business basis.

One of the problems previously was the degree of technical involvement required from the user. Informatics' manufacturing systems division has now been restructured to emphasise the development of customised

manufacturing systems. These will use Production IV software as basic building blocks.

The new service will be marketed both in the US and in Europe.

Meanwhile, information is beginning to emerge on the firm's latest introduction, its personnel management system (Software File, August 3, 1978). Called Management IV/Human Resource System, this is described as a flexible, end-user oriented product, integrating a comprehensive database with the company's well-known Mark IV data management system.

NCC to investigate product licences

HOT on the heels of the CSA, which recently published a set of guidelines on software product licences (Software File, November 23, 1978), the NCC has set up its own working party to report on the subject.

With the growing number of software packages being purchased, says the NCC, computer managers need to draw up suitable contracts to cover purchase, installation and maintenance.

"The investigation," it continues, "will help managers to understand the nature of sales contracts — such as terms that should be covered — and will help to equip them for the necessary contract negotiations."

The working party, chaired by NCC group director E. D. Scriven, aims to produce a handbook along the lines of the NCC's book on hardware contracts, published in 1977 (CW, August 11, 1977).

Other members of the working party include a representative of the Institute of Purchasing Officers, and others from the Central Computer Agency, PA Management Consultants, Digital Equipment, Simplicity Patterns, and Babcock and Wilcox.

Plant register package for the PDP-11

AN asset management system capable of running on any DEC PDP-11 Datasystem has been launched by Time Utilising Business Systems, of Leicester. Called Tplant, the package provides a means of maintaining an up-to-date plant register while generating a variety of reports on such aspects as depreciation, insurance and costs.

Two basic report types are generated: a full plant report, by location, and a plant profit and loss report on disposal. The system will also produce an action report, highlighting plant that is due for periodic management attention, such as re-insurance.

An important aspect of the system is its facilities for current cost accounting. Explicitly designed to meet the requirements of the Hyde guidelines on inflation accounting, these permit the user to apply inflation indices specific to each asset category — and produce appropriate reports.

Although Tplant was written using Tuba Cupid-11 file management system, this soft-

ware is not a prerequisite to installing the package as it is supplied in object form. Tplant programs run under both RT-11 and RSTS operating systems, and use DEC's Dibol run-time routines.

Developed by the company in conjunction with several clients, the system has been in intensive use at one site for over nine months. It is priced at £2,000.

Substitute for DEC Backup

A HIGH-PERFORMANCE backup program for Digital Equipment PDP-11 users running RSTS/E has been announced by Jenson Computer Systems. Called Saver, the software is a substitute for DEC's Backup and can run up to three times faster.

Partially written in Macro 11, Saver makes its most dramatic impact on CPU cycles consumed, typically achieving cuts of around 85%-95%. It also significantly reduces the number of disc accesses, usually

by a factor of between 3 and 10.

The package in addition offers a number of functional advantages, according to Jenson.

Among features mentioned by the company are the ability to write PIP/DOS files, and to write a system bootable tape permitting recovery to a blank system disc. Saver will also perform partial saves, based on files, update or access dates; and will write a partial or complete log file.

Saver is sold by Jenson for £750.

Q-PAC Services

THE company now supporting the Q-Pac payroll package, Q-Pac Services Ltd (Software File, January 11), is to take over all UK marketing of the software from the end of the month.

Q-Pac Services was originally set up by the South African parent company in the early 1970s, but has been dormant since PPL took up the UK

agency for the product.

According to Q-Pac director David Teron, the decision to re-activate it was taken last year following user criticism of PPL support arrangements (Software File, May 25, 1978).

Q-Pac Services is at 62 King St, Maidenhead, Berks. Tel: (0628) 71824.

Troublesome stuff

"SOFTWARE is troublesome stuff" should be regarded as the most pointed understatement of the end-of-year new year.

It was uttered by that literate "practical philosophy" of computing Murray Laver when he gave the first annual BCS Lecture (CW, January 11).

Expanding this thought, he went on to say that poor soft-

ware and systems design "can also degrade the performance even of excellent hardware which, rather like the Sleeping Beauty, is surrounded by discouraging thickets of briars."

Caught betwixt cheese roll and coffee-stained coding sheet, you might chuckle at this often repeated attack on software and smile back to churn out more code in the comfy knowledge that, come hell or high unemployment, the computing Press is overflowing with jobs.

Laver, however, after pointing

out that so important a matter as computing needs to build on a firm theoretical foundation commented that he was so pickous of any subject which "courts respectability by finding the word 'science' in its title."

Although computer sciences were attracting large numbers of students, he perceptively suggested that the reason for this might be the same as one suggested in defence of studying classical Greek literature, that "it not only elevates above the vulgar herd, but leads not infrequently to positions of considerable emolument."

"What makes a subject academically respectable," he added, "is that it should be analytical, coherent, teachable and tough; computing science meets some of these requirements, although rather too much of its toughness is intellectual gristle rather than sinew, for there is much detail but few broad principles or general laws."

Having pointed out that the main developments in computing technology, ranging from distributed computing and parallel processing to the need to handle the real world of "life's unstructured, non-symbolic and generally scruffy data," Laver said he hoped the "rather tentative and confused advance" of computer sciences did not deny to commercial and industrial computer users the "strong theoretical support needed to stay in business and out of trouble" as they exploit new information technologies.

● Computerview on the jobs market, page 2.

MR J. le Duc, of Cuckfield, Sussex, was one of several readers who sent in alternative answers to the Christmas issue problem (which called for a solution to 4×DEUX − HUIT, with E even). It now seems that the alternative answer given at the time — DEUX = 1324 and HUIT = 5298 with E odd — is in fact the only unique form after all.

Mr le Duc ended his letter by putting forward the following alphmatic for readers' mystification:

```
    L I F E
    L E S S
  + D E A D
```

with F known to be 3. See page 61 for solution.

Microcode for large machines increasingly popular with IBM

ALTHOUGH, in common with other manufacturers, IBM has traditionally shied away from microcoding its top end machines, it now sees a microcoded instruction set as an increasingly desirable feature of its most powerful hardware.

This was made clear by an IBM speaker at the recent BCS 79 Living with Computing conference.

Addressing the Measurement of Computer Performance Specialist Group, Oliver Wintringham of IBM (UK) explained that "real performance advantages" were the reason for increasing IBM use of microcode in its large machines.

This meant, he said, that performance seen by the user at levels of architectures such as SNA, IMS DL/1, MVS, and language processors.

It was meaningless, Wintringham noted, to argue in this context about millions of instructions per second (MIPS), as a single microcoded instruction could do the work of many conventional instructions.

Wintringham used as an example Extended Facility, IBM's accelerator package for MVS/SE consisting partly of conventional coding improvements and partly of microcoded routines.

Thus a machine with a microcoded instruction set offered scope for increasing the speed of

creasing IBM use of microcode in its large machines.

"For example, in the case of one MVS function, the software implementation took 56 instructions and required 332 machine cycles for its execution. When microcoded, the function reduced to a single microcode instruction that executed in 70 machine cycles."

Among savings that microcode could achieve were a reduction in the number of status saving and restoring operations; a reduction in the need of validity checking; fewer repeated fetches and stores; and the elimination of the instruction fetching overhead.

"The microcode assist added to the machine 14 instructions specifically useful to MVS. By exploiting the processor's

potential for parallelism at the lowest level, these allow the operating system overhead to be reduced.

"Microcode implementation of such functions is analogous to writing the key portions of a high-level application system in assembler."

One aspect of this analogy, Wintringham noted, was that identical criteria applied.

"Among key considerations, for example, are whether the function is stable enough that it is unlikely to be modified, and whether it is really used enough to justify the effort of a lower level — and thus more efficient — implementation.

"When you look at most systems, the critical kernel usually turns out to be very small indeed. Rewriting additional sections gives rapidly diminishing returns."

system software through the microcode implementation of frequently used routines.

Geoff Brown, chairman of the specialist group, commented that the Dispatcher was one of the most intensively used functions in VS1. Yet when IBM had produced an assist for the operating system, only the last five instructions had been microcoded out of the nine or 10 pages of assembler which constituted the Dispatcher.

Wintringham commented that he was not familiar with the details of VS1.

While microcode can undeniably contribute to reducing systems software overheads, there have been suggestions that its potentiality is of at least equal significance in IBM thinking (Software File, April 13, 1978).

Wintringham was subsequently challenged on the desirable application of this tradeoff in the case of IBM's os VS1.

By Bernard Allen

A problem shared is a problem halved—use others' experience

AT some installations it is company policy to recruit operations staff at trainee level only. This is to the advantage of the site management who are thus relieved of the need to cure the new recruits of any "bad" operations habits, and are able to indoctrinate them into the installation way of working quite easily.

But in the long term this scheme tends to have a detrimental effect on the operators themselves; they tend to acquire a rather narrow, or limited, view of operations and are in no position to judge whether or not they are treated fairly by the installations. Operators at such sites just do not know how other installations are organised and run.

This situation is brought to our attention by an operator who is employed at one such site. In the absence of any organisation or body capable of establishing and maintaining standards in operations he poses some direct questions. In essence he asks:

How are the operators to know if the site is up to scratch on health and safety matters? And what of facilities for the operators?

How are they to know if their basic salary and shift allowance are as high as they should be?

Unions. Do established unions appreciate the problems faced by operations staff? And what do such organisations have to offer the operators?

Well, someone, somewhere, once said that a problem shared is a problem halved — a thought which applies very much to the difficulties that operators often meet. Operations staff must communicate with counterparts at other installations; there exists within the operations fraternity a vast wealth of experience and knowledge and there is often someone who has the answer to a particular problem. It is folly to waste this expertise.

More specifically, and referring to the question on health and safety, operations staff should be aware of the legislation that exists for their benefit.

Under section 28 (1) of the Offices, Shops and Railways Act of 1963, a first-aid box or a cupboard, containing solely first-aid requisites, must be provided for use by employees (Op Spot, June & 1978). This nearly always means that when shifts are worked, a first-aid box must be placed in the computer room and be under the care of a responsible person.

If this facility is not provided at your site, discuss the above Act with your operations manager. If he doesn't respond in a prompt and appropriate manner contact your local branch of the Health and Safety Executive and get them to take some action on your behalf.

Also inform your operations manager that both the St. John Ambulance Brigade and the Red Cross stage first-aid courses and charge less than £10 per person trained.

Incidentally, under section 27 (1) of the Offices, Shops and Railways Act, you are entitled to refuse to work in an area that does not have suitable firefighting equipment. In terms of the computer room, this means an automatic CO2 system, or manual equipment.

Under the Health and Safety at Work Act, no employee should work for more than five and a half hours continuously. Such a period must be followed by a break of at least thirty minutes, remote from the place of work.

On October 1 new powers came into being under the above Act. It is now mandatory for a safety policy to be drawn up and displayed in all places where five or more people are employed.

So a good general rule concerning health and safety matters is this: if in doubt, contact the Health and Safety Executive and ask their advice.

The basic salary and shift allowance paid to operations staff has always been a matter of contention. It is a rather complicated issue, too. It depends, to a considerable extent, on how and where the operations job fit into the company's grading structure. Of course, many other factors come into play, including:

The equipment used. For instance, IBM operators, generally speaking, tend to earn more than their ICL counterparts.

Where the site is situated. For instance, operators in the capital will receive a London weighting allowance because the cost of living there is higher than in other parts of the country.

Read the computing magazines to keep in touch with the operator market and be alert to any opportunities that might crop up. And if you decide to make a move, ensure that you secure a position worthy of your experience.

This brings us to the question about unions. But first let's consider the concept of an operators' union, as many operators have contacted me about this subject in the past.

Here are some of the areas in which such a body might effect an improvement:

We have already dealt with health and safety matters. And an operators' union, or call it what you will, would do much to ensure that operators are better informed and that measures are taken to establish and maintain sufficiently high standards.

At some sites hardware — sometimes even software — enhancements are carried out

without consulting the operators, who first learn of the new printers or disc drives when the units actually arrive in the computer room and they are expected to operate them.

This is a ridiculous state of affairs. Operators should be informed of any plans to enhance or modify the system, and they should be paid salary increments, accordingly. Too many installations take liberties in this regard and an operators' union might help to rectify the situation.

It might also help to ensure that promotions take place from within the operations department.

IBM OS WRITER procedure

LAST week in Op Spot we discussed the READER procedure, that part of the IBM OS operating system responsible for placing work on the system input queues.

Now I would like to consider the IBM OS WRITER procedure which takes data from the system output queues and transfers it to the system output devices.

IBM OS supports 36 output queues, or classes, and each WRITER will handle a maximum of eight of them. The OS command to start the WRITER has the following format:

S WTR.020PQR12,,pqr12

Then, by entering the OS DISPLAY command, any of the operators will be able to find out what each of the units is being used for. Thus the master console operator is able to find out

ment. I know of several sites where positions, such as in the TP section, have been awarded to non-operations personnel.

Sadly, we have no union. So let's consider some of the established trade unions that have a significant number of computing staff within their ranks.

Three of the main ones are TASS, ASTMS and APEX. In addition, there are those which are related to particular organisations and industries, such as the CPSA and SCPS for Civil Servants, NUBE for bank employees, and NALGO for local government staff.

perience, seldom included. To start a WTR procedure called WTR to printer 020 and serving output classes P, Q, R, 1, 2 and 3, the following command is used:

S WTR,020,,pqr12

But under certain circumstances, an IDENTIFIER might be included to good effect. For example, if the site runs several printers at a time it is necessary to know the output classes each of them is serving. The command used is as follows:

S WTR.020PQR12,020,,pqr12

Then, by entering the OS DISPLAY command, any of the operators will be able to find out what each of the units is being used for. Thus the master console operator is able to find out

certain information by means of the operating system, instead of contacting the operator tending the output, or unit record devices.

Alternatively, the IDENTIFIER might be defined as the name of the person tending the unit. For example, if an operator called Mike is to be responsible for unit 022, the following command might be used to start the procedure:

S WTR. Mike,022,,AXY23

The WRITER procedure is also responsible for punched output. In this case, it is often called WTRB, as class "B" is the accepted norm for punched output under IBM OS.

Major problem of year will be variety of buses

NOW that the actual capabilities of microprocessors and microcomputers have stopped being the "mind-boggling" wonders that some of the national press continue to see, many interested people have started to move their attention away from the devices themselves, and on to the more important question of easily interconnecting those beasts to the outside world.

The problem of microcomputer buses, their variety and usefulness, is liable to be one of the most important topics for microcomputer users and designers during 1979.

The article by Dr Richard Stevans on the S-100 bus structure (CW November 23, 1979), has already stirred up a small hornets' nest of controversy that has been reported on the page before, but it continues unabated.

The S-100 bus, by virtue of its widespread use amongst many microcomputer manufacturers, has become something of a "de facto" standard for a small systems bus structure, its biggest failing, however, according to its detractors, is that while commonly used, it is not in fact standardised.

For example, a recent letter from Anthony Aylward of Gillingham, written in response to Dr Stevans' article, starts by making this very point, and goes on to list other failings of the bus

that, he feels reflect badly against it in the rapidly developing field of microcomputing.

"The original S-100 configuration was never intended for growth," he writes, "or with any consideration for what the future of microcomputers might hold."

He quotes as an example that fact that, having been originally designed for the Intel 8008, and "mutilated" for the 8080 and Z80, it cannot support Motorola's 6800 family.

Adding, as Aylward puts it, insult to injury, Dr Stevans omitted to mention a UK designed bus structure known as E78.

According to Aylward, "this has been designed as a forward looking bus that allows the full capabilities of the new generation of 16-bit machines to be fully and easily realised without precluding the use of the smaller and slower 8-bit machines.

"It is a fully processor independent bus that has been structured to allow commonality of data structures between 8 and 16 bit machines."

Such a facility is not available to S-100 bus users, he states, while it allows the upgrading and development of E78 based systems.

"The E78 does indeed seem to fulfil its claims of being 'the bus for all micros, the bus for the future.' Having seen the sheer

simplicity of interfaces for it, from things as humble as the National Semiconductor SC/MP through the immensely popular Nascom 1 to an interface to the DEC Unibus, I feel that E78 does for microcomputer hardware what 'structured programming' does for software."

Aylward goes on to point out that the E78 bus has one additional advantage which could be very endearing to microcomputer manufacturers.

Up to the present date, he writes, a board designed for one system will find no market outside that system. As an example, he quotes the Tandy and Nascom 1 systems, which both use the Z80 CPU chip, yet support devices and expansion boards are in no way interchangeable or related.

Users, therefore, can become trapped into a closed market. But this is not just one way, he suggests.

Manufacturers can end up with a limited market for their products and, if they wish to go beyond this, are obliged to design and produce an additional circuit board to perform the function.

With the E78 bus however, he claims that this is not necessary. "Any microprocessor can be interfaced to E78 with very little trouble, as can any support chip. Other systems can also be slaved to E78 in fact from reading the

specification it would seem that anything with a bus structure and a data bandwidth of less than about 6 Mbytes/second could be interfaced with E78."

Dr Stevens' article, as prompted by M. R. Barclay, manager of Calcomp's Models Division, to point out that Calcomp's Model 2859 S100,based controller can run up to 6 Mbytes from a single board.

User group launched

A USERS' group for the microprocessor development systems has been started in an attempt to keep users up-to date with new Intel products and provide a platform for software and hardware products.

Membership of the group is free, and loosely made up of individuals who own or intend to use either the Series I or Series II development systems.

Entirely independent of Intel, the group is based in Telford, and can be contacted by writing to 219 Grange, Bedford.

Prime enters 32-bit minicomputer business with four new machines

THE latest entrant to the 32-bit minicomputer business is Prime, which has weighed in with four machines,.the 450, 550, 850 and 750. According to Prime they are a 100% software compatible with the existing 16-bit Prime computers and run the existing Primos operating system.

Prime says that existing 16-bit machines can be upgraded to the new 32-bit computers and that some of the differences include a new pre-fetch feature and a higger instruction set. The 750 comes with a 16K byte cache

London boroughs join ICL to tackle staff shortages

THE twin problems of shortage of computer staff in local government and unemployment among school leavers are being attacked by a training schema organised by ICL and 16 London boroughs. ICL's Education Institute will run a six-month intensive courses for trainee programmers sponsored by the London boroughs'. DP departments under a programmar apprenticeship schema.

The trainees will primarily be school leavers aged between 17

memory while each of the other 32-bit machines has 2K.

On the software side, facilities introduced by Prime for use with the 32-bit machines include X25 support in the Primenet communications package.

Also new are PL/I and Fortran 77 compilers and an interactive data management facility called Prima/Power.

The top end machine, the 750, is about two-and-a-half times more powerful than the 500, existing top end machine in the 16-bit Prime range.

and 19 chosen by the local authorities after a recruitment campaign which includes local radio. They will be given an aptitude test but no specific qualifications will be required. Each course will consist of 14 trainees, taught by a lecturer and a senior programmer both from ICL. The first course starts in early February.

The 22-week courses will involve much more in-depth programming practice than the usual four-week course.

The 450 differs radically from the other three new machines in that it will be offered purely on an OEM basis to systems houses and its price will be kept very low by supplying it in standard configurations and with no program completion facilities. The 450, 550 and 650 can have up to one, two and four Megabytes of MOS memory, respectively, while the memory on the 750 can be expanded up to a maximum of eight Megabytes.

MP pressure on Inmos

A PLEA by Iann Barron, strategic director of Inmos, to be left free of political pressures, seems likely to fall on deaf ears.

A group of Greater Manchester MPs are threatening not to vote for the government's Bill allocating more funds for the NEB unless it assumes greater control over the location of investments.

They are furious that the Inmos Technology Centre has gone to Bristol rather than the Manchester area, claiming that senior executives want to live in the Cotswolds.

London schools to get 30 micros

COMPUTING facilities for London schools and colleges are to be given a hefty boost by the purchase by the Inner London Education Authority of about thirty 380Z microcomputer systems from Research Machines of Oxford. But effective use of them will be seriously held up by lack of trained teachers and appropriate software and teaching aids.

Derek Esterson, ILEA inspector for computing, said that £55,000 of the authority's central funds has been allocated to buy about 20 larger, disc-based systems with colour graphics, and 10 or 12 smaller systems into which it would be possible to plug more equipment later on.

Schools wanting a machine to themselves will have to make a contribution towards the cost of about £1,200 for a larger system and £500 for a smaller. Colleges will not have to make a contribution. Some machines will be centrally based and mobile.

The Secretary of the Society of Microcomputer Users in Secondary Education, MUSE, Charles Sweeten, while applauding ILEA's decision to buy all this

equipment, said there was a serious danger that the money would be wasted if there was not adequate central support.

There was a shortage everywhere, he said, of teachers with direct experience of these machines who really knew what to do with them, and the amount of software for use in the classroom was very limited.

It was difficult, Sweeten said, to get across the idea that the computer is a tool and not just for playing games. He pointed to the experience of Humberside schools, where there was a computer library of 500 programs, and for a time 60% of the usage of these was solely on one for playing Startrek.

With the growth of home equipment such as educational calculators from Texas Instruments, Sweeten said, schools might well fall behind parents in providing facilities for children.

MUSE held a meeting in London last November, and was disappointed at how few ILEA teachers came. "The Midlands, Liverpool, and the North East are where things are happening in this field," said Sweeten.

Esterson agreed that ILEA was desperately short of experienced people, and would continue to be for a long time. The new equipment should help to motivate teachers to learn about the subject at home, and this would help to solve the problem, he said.

There was also a "huge gap" in the availability of teaching materials, he said, which must be tackled by central government. "The DES is dragging its heels on this."

There is some, but far too little, computer training in colleges of education, Esterson added. In-service training is only a short-term solution. He explained that spending money on hardware was not taking funds away from training programmes, because of the way local government manages its finances in separate compartments.

It was always easier to get money for capital expenditure than for people, he said.

New micro range from TEI

A RECENTLY introduced range of microcomputer systems from Houston-based Texas Electronics Instruments is now being distributed worldwide by Abacus Computers, a newly formed microcomputer company set up by ex-Commodore man Derek Rowe.

All the products in the TEI range feature a 32K byte CPU that is expandable up to 64K, 2K bytes of PROM, three parallel and three serial ports, and a floppy disc controller allowing a mixture of large and small disc drives. Starting prices for the range are

around £4,000.

The systems are fully compatible with the CP/M operating system and its range of utility programs, and are capable of running software written in Cobol, Fortran, Super Basic, Pascal, RPO II and APL.

Abacus has also been appointed as the Department of Industry's Mapcon list of approved microcomputer consultants.

Our picture shows the TEI PT 408 microcomputer incorporating 32K RAM.

Management changes at IBM General Business

SENIOR management changes have been announced in the General Business division of IBM United Kingdom. Kenneth Woodward has been appointed assistant to Brian Cummirley, president of the General Business Group International in White Plains, New York. He was until recently general systems director, and prior to that General

Business Group management services director.

Prnmoted to the position of General Systems divisional manager is Teresee Osborne, formerly General Systems sales manager, and before that administrative assistant to IBM chairman Frank Cary in New York.

Memorex promotions

Ed Picken has been promoted to the position of UK computer media sales manager with Memorex UK. He was previously computer media sales manager for the Midlands. He replaces Andy Blyth, who has become computer media promotions manager with Memorex European operations. Nigel Chorley has joined the company as a media technical support engineer from Control Data, where he was QA engineering manager.

Two new equipment sales executives have been appointed for the South and West branch of

Memorex UK. They are Jeramy Smith and David Milne. Smith was formerly a salesman with Univac, and Milne a salesman with Control Data. John Staples has joined the London and East district as a salesman responsible for sales of large systems for the UK and Eire. He will be based at Data General's new headquarters at Hounslow, which is occupied in September.

George Nagelewski has become managing director of The Marketing Results People, a sister company to Crouchwood. He was formerly sales manager with Xerox.

Paul Webster has been appointed deputy director contracts and secretary of the Electronic Engineering Association. He succeeds Tony Marshall who is retiring after 20 years.

John Wright, UK managing director of SEL Computers, has been appointed director of European operations to co-ordinate the activities of European subsidiaries in France, Germany, Italy, Scandinavia, United Kingdom and the Benelux countries. SEL has also announced the move of its UK Operations to new offices in Sutton, Surrey.

New marketing director for Plessey

PLESSEY has appointed a new director of marketing for its Avionics and Communications division. He is Jim Conduit, formerly commercial manager for Sistema de Transporte in Brazil. In his new position he will be based at the company's Ilford headquarters and will report to Alan Cannock, managing director of Plessey Avionics and Communications.

Call for papers

PAPERS are invited for the fourth International Conference on Software Engineering, to take place on September 17-19, 1979, in Munich, Germany.

Martin Amor has been appointed education consultant for southern England for BIS-Deltak, and John Hexford as education consultant for northern England, Eire, Scotland and Wales. Before joining BIS, Amor worked as a systems analyst for the British Oxygen Company, and Hexford was operations manager for Great Universal Stores.

Jeff Davies has been appointed chief engineer with Lee Green Precision Industries, which is a member of the Unitech group. He was until recently development services manager with Sealectro. In his new position he will head a development team which will broaden the Lee Green connector range.

Nigel Shaw has joined Eurodynamics-Denwood as technical director responsible for UK project management and company technical standards. He was previously with Eurotherm Systems Group where he was industrial sales manager, and before that with Infra-Red Engineering.

Thomas Donohue, formerly manager of general accounting at Univac, has joined Data General as controller for the UK and Eire. He will be based at Data General's new headquarters at Hounslow.

Paul Davies has joined Solid State Controls as marketing manager. He was formerly with Sigma Coatings.

HONEYWELL entertained a group of sixth formers at its Minicomputer and Terminals division in Hemel Hempstead. The boys from Haberdashers' Aska's school, Elstree, were shown several Level 6 minicomputer systems and also operated one of the Level 6 models in the data centre at Hemel. Stuart Polo, Honeywell's promotions manager (extreme left of our picture) is himself on old boy of the school.

DIARY

Honeywell Controls puts £1m into Scottish plant

A £1 MILLION investment, backed by a further £250,000 from the Scottish Development Authority, is to be made by Honeywell Control Systems in its Newhouse, Scotland, factory. The money will be used to establish a new production line to manufacture advanced process control equipment, including the TDC2000 range, and a new microprocessor based system, called DCP7700.

First products from the new line are scheduled to appear in November, and the investment will result in the creation of 125 new jobs, including 80 new high technology occupations. Most of the investment will go to the introduction of advanced component handling facilities, computer-controlled component distribution systems and test and diagnostic facilities.

The money from the Scottish Development Authority, Honeywell's landlords in Newhouse, will go to renovating the factory building, though no

Managing director Jim McGregor ... "just a beginning for Newhouse."

extensions are planned.

Managing director Jim McGregor sees the investment, and the two product ranges that

will come out of it, as just a beginning for Newhouse. "Some R and D effort has already been put in at Newhouse," he said, "and this will be expanded. There will be new products using advanced digital technology coming out of Newhouse in the future."

The new DCP7700 digital control programmer has been available in America since September. Based on an Intel 8-bit microprocessor, with some 16K bytes of memory, it provides LED digital displays. Program storage is in non-volatile memory.

It combines a variable setpoint versus time programmer with a three-mode controller to provide an accurate, flexible and compact control system. Up to nine separate programs, consisting of up to 200 functions, including temperature ramps and soaks, and event switches, can be stored in the system.

Programming is by a keypad for both data and operating commands, with read-out from LED digital displays. Program storage is in non-volatile memory.

"It combines a variable setpoint versus time programmer with a three-mode controller to provide an accurate, flexible and compact control system ... what Honeywell describes as 'previously impossible levels of power and flexibility.'"

Perkin-Elmer offers Series Sixteen family of low-cost hardware packs

AIMING for a bigger slice of the commercial systems market, Perkin-Elmer Data Systems has introduced a family of low-cost hardware packages, the Series Sixteen, which the company is offering on an OEM basis to systems houses.

Series Sixteen is based on a group of four new 16-bit machines from the Interdata division of Perkin-Elmer, each of which employs MOS memory instead of the core provided with the existing Interdata minicomputers.

The new machines are software compatible with the existing 16-bit Interdata minis, and Perkin-Elmer has enhanced its 16-bit operating system with a feature called Resource Sharing, RS, which can support up to 16 terminal users and which extends the program development capacity of the RS filer provides batch processing facilities.

Fortran IV and Basic are already available for use with Series Sixteen, and Perkin-Elmer is currently developing a version of Cobol for the systems.

Perkin-Elmer points out that the Series Sixteen systems are not being offered purely for commercial applications but that they are intended to increase the proportion of its systems in the commercial systems market.

The four systems in the series are the 1615, 1624, 1625 and 1635. The 1615 in its basic form comes with a 32K byte memory, a VDU, a printer and the OS/16 software, and costs £7,730, while the basic 1635 includes a 128K byte memory, 10 Megabytes on disc and a VDU and matrix printer for £20,360.

The 1635 processor is much more powerful than the most powerful existing 16-bit Interdata machine, the 8/16E. Disc storage can be expanded to 300 Megabytes.

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Liveware Saga   by Don

S.O.S. ... S.O.S. ... S.O.S.

EITHER THE MICROPROCESSOR APPLICATIONS GROUP ...

... HAS DISCOVERED SILICON-ON-SAPPHIRE

... OR DR RUIN OUT OF FUNDS ALREADY ...

RORY JOHNSTON ON FREEDOM OF INFORMATION

Freud's Official Information Bill a landmark

ALL government records, including computer files, will have to be accessible to the public if Clement Freud's Freedom of Information Bill, due to have its second reading on January 19, is passed into law. Every government department, and the National Health Service, will have to produce complete indexes and guides for the use of members of the public to enable them to obtain any document they wish, subject to certain restrictions as to defence, foreign relations, and law enforcement.

The chances that the Official Information Bill, as it is called, will actually be passed into law in its entirety are slim, owing to tacit opposition from the government and dissension in the ranks of the Bill's supporters (CW, January 4) but in any event the Bill is a landmark in the efforts of backbench MPs to exert more control over the Civil Service. Its supporters come from all parties, and in addition to Clement Freud they include David Steel and Richard Wainwright (Liberal), Hugh Fraser and Jonathan Aitken (Conservative), Jeff Rooker (Labour), Margaret Bain (Scots Nat) and William Craig (United Ulster Unionist).

The Bill was drawn up by the Outer Circle Policy Unit, an independent group that studies public policy and which is funded by Rowntrees. In its present form the Bill does three separate things.

First, it repeals the controversial Section 2 of the Official Secrets Act 1911, which is the blanket prohibition of the unauthorised disclosure of any government information and which has led to several widely-publicised secrets trials.

Second, the Bill establishes the right of access by every person to official documents, subject to various exceptions which it lists. Rules are imposed on government departments saying how they must assist members of the public in this.

Third, the Bill fills in for the repealed Section 2 by establishing some criminal offences for the unauthorised disclosure of information relating to defence, security, intelligence and "identifiable individuals", and any information likely to impede the prevention or detection of crime.

The classes of documents that are exempted from disclosure are these: those concerning defence, security, or foreign relations (but not including the Common Market); those whose disclosure is prohibited by any other Act of Parliament; those concerning law enforcement whose disclosure would be helpful in committing crimes or would impede the prevention or detection of crime; those to do with legal proceedings; those to do with an identifiable individual (other than the person applying, so one can ask to see documents about oneself); and Cabinet papers, up to five years after they were written.

Disclosure of documents to do with the "formulation of policy" can be deferred until some "particular event" or administrative action, "when it is reasonable to do so in the public interest", another vague provision. Papers containing only factual information, and scientific and technical reports, cannot be so deferred.

Every government department is required to publish a Code of Guidance providing all the information people will need to obtain access to documents. This will include a guide to the cataloguing and indexes in the department. Clearly many indexes will have to be reconstructed to make them understandable by lay people. Departments will be allowed to charge small fees for the making of copies.

● For comment on the issues involved in the Freedom of Information debate, see CW, January 19, August 24 and September 7, 1978.

A department receiving a request must reply within 20 days, either with the copy or with an explanation of a refusal, also, outlining the applicant's right to appeal direct to the Ombudsman (with no MP's intervention necessary).

Kit for information systems planning

INFORMATION systems planning, implementation and management can be aided and supported by a kit now available from the management consultancy SIMPACT. Called PROMPT II, the kit is the latest development of Simpact's PROMPT, Project Resource Organisation Manpower and Planning Techniques, system.

Set up in 1975, Simpact has just moved into a new headquarters at Shedfield, near Southampton, a large Jacobean-style mansion that will accommodate Simpact's training courses, the other side of the firm's business. The courses cover topics like technical standards, information systems network planning, organising project teams and most aspects of structured programming.

The kits are now also being sold in North and South America and Israel by Auerbach. Simpact Inc, a firm set up jointly by Simpact Inc and the Auerbach group of Pennsauken, New Jersey.

The PROMPT II kit comes in the form of a set of ring-back manuals providing management standards, checklists and models to guide its user through a predefined sequence of steps towards a fully documented and operational information system.

PROMPT II is designed for projects of between nine months and two years' duration, and is divided into six stages: justification, specification, design, development, installation and operation. A smaller version called Mini-PROMPT II is available for projects lasting nine months and is similarly structured. PROMPT II and Mini-PROMPT II cost £4,000 and £8,000 respectively.

Batch comms on Qantel

BATCH communications facilities for IBM and ICL mainframes are now available with the Qantel range of small business computers introduced to the UK market by General Computer Systems (CW, January 11).

IBM users are offered a System 3 HASP multi-leaving terminal emulator that requires a 16K partition in a Qantel system and also an IBM 2780 emulator that runs in an 8K partition. In addition, Qantel now has a 3780 emulator and is developing a communications controller that will be able to carry out Synchronous Data Link Control, SDLC, and High-Level Data Link Control, HDLC.

GCS in the UK can provide a 7020 batch terminal emulator for Qantel systems for ICL 1900 users and will soon be able to offer 7502 batch mode emulation facilities for communication with a 2000. GCS has provided these facilities for some time its 2100 series of key-to-disc systems.

Within the next year Qantel will introduce a special interactive terminal for use with the Qantel systems that will be able to emulate the IBM 3276 and ICL 7501.

GCS itself is selling the Qantel systems to big computer users in the UK but the small machines, particularly the 2000 floppy disc based system, are sold to first-time users by several distributors appointed by GCS. The first such distributor is Vesbury Ltd, of Esher, Surrey.

marketplace

Contract Steve Bass

FOR SALE

Dataprinter

Systime acquires MBM

ONE of the biggest minicomputer system suppliers in the country has been formed by Systime's acquisition of Northampton-based Midland Business Machines. Both firms specialise in systems configured around Digital Equipment computers.

Systime is by far the bigger of the two firms, with a staff of 480 and about 400 systems installed. Its turnover in its 1977/78 financial year was £9.1 million (CW, December 21/28, 1978). MBM will increase Systime's head count by 120 and add about 100 machines to Systime's customer base.

The Northampton firm chalked up a turnover of £2.7 million last year and Systime is forecasting that the turnover of the combined operation will approach £20 million in 1978/79.

Unlike Systime, which builds a high percentage of the kit that it sells, MBM has always bought in most of its hardware. MBM has concentrated on software development and has produced a set of commercial software packages that it sells with its main product, the 7000, a system configured around the DEC PDP-11/34.

BL Cars orders 50 ICL 1500s

THE drive to increase the penetration of the ICL 1500 intelligent terminal in the packaged systems market is meeting with success, and the latest coup is a £750,000 contract from BL Cars for 50 1500s.

The machines are for use by Austin-Morris and Jaguar-Rover-Triumph dealers, and tailored software from Dataskil will be written by ICL Dataskil.

The terminals will also be able to communicate with other BL Cars computer systems, and the BL Ltd division will recommend the 1500 system to all its 2,000 dealers.

'About-turn likely for distributed processing'

THE trend towards distributed processing is about to reverse direction. The rapid pace of technological development coupled with the equally rapid rise in the cost of staff is producing an economic environment in which many of the current arguments for decentralisation are becoming obsolete.

This is the view of Zenichi Fukuda, a computer systems engineering executive with Fujitsu in Tokyo. Fukuda has developed his thinking as a result of his experience in developing new systems for Fujitsu customers, and he presented a paper on the subject at the International Conference on Computer Communications in Kyoto, Japan.

The paper provides a sober analysis of the merits of centralised and distributed processing, and is in no way polemical document. Throughout Fukuda is careful to relate his arguments to the needs of users.

If one were to criticise the document, it would be on the grounds that he fails to define his terms clearly enough. He says enough to establish his case that centralised computing is of greater importance than it is generally made out to be, but weakens his point by not distinguishing between distributed processing and distributed data entry and, on occasion, confusing the two.

The distributed processing philosophy, runs the argument, first gained strength during the period of worldwide low economic growth during the early seventies.

This intensified competition and so drove companies to find new, more sales-oriented forms of organisation in order to compete more effectively.

The result was a distribution of responsibility from the corporate centre, with the formation of product group divisions in heavy industry, and market group divisions in the office equipment industry.

But it was the smaller companies, tightly co-ordinated and vertically integrated, which took the lead in developing new markets. The conclusion

Patterns / Item	1 Centralised Batch	2 Centralised RJE	3 Centralised Online	4 Distributed Batch	5 Distributed Online
End users' satisfaction	5	3	4	1	2
Realisation of system needs	5	1	4	4	2
Costs (computer plus line)	1	3	5	4	2
Number of computer staff	5	3	1	4	2
TOTAL RATING (without weighting factor)	5	3	2	4	1

Table 1.

is that distribution of data entry and billing is helpful in improving marketing, but centralisation is still essential for control of sales and production.

Economic factors are now increasing the value of centralisation. The introduction of chip technology, leading to low-priced minis and micros, had spurred on the development of distributed processing, but now large-scale computers are themselves undergoing a period of dramatic price reductions.

The use of five separate computer departments involved a lot of expensive duplication; savings on hardware alone were estimated at $40,000 a year after the change-over. Secondly, the company wished to change to

online working, and a system of the capacity and complexity required simply could not be supported divisionally.

The second company was in the oil business and had a network of small computers linked to a central medium-sized computer. The company was experiencing delays in processing, leading to lack of timeliness and out-of-date information. This was overcome by changing to a large central mainframe. A by-product was a reduction in the number of programs run from 1,000 to 400.

In conclusion, Fukuda summarises computer systems into five types; centralised batch, centralised batch with RJE, centralised online, distributed batch and distributed online. Rating these in order of merit according to a number of characteristics, he arrived at the position shown in Table 1.

This shows clearly that the operative question for planners of new computer systems relates, not to the merits of centralised versus distributed processing, but to the overwhelming superiority of online processing as against batch.

economies of scale which can be realised by centralisation.

Fukuda quotes two examples of companies which converted from distributed processing to centralised processing. The first was a dye-works, which had previously had five divisional computer installations, each of which operated independently. There were two main reasons for the change.

—NICHOLAS ENTICKNAP

—FUJITSU EXECUTIVE

Investment analysts predict a strong year for major mainframers

DESPITE expectations that America will experience a "mild recession," the computer and communications stock analysts at Drexel Burnham Lambert foresee a strong year for computer companies, particularly the major mainframe makers.

In a pair of reports describing the outlook for the computer industry and the telephone industry, DBL's analysts, Harry Edelson and Susan Hirsch, state that "mainframe computer operations will not be hurt to any great extent" but note that the telephone industry will not do as well, and that for such companies, including AT&T, "a slowdown is probably imminent."

The forecasts are based on an overall economic analysis by DBL brokers and on in-depth studies of the computer and telephone industries.

Edelson and Hirsch characterise the mainframe industry as being resilient in the face of recession because rental and service revenues are high; because the manufacturers have full order books, as much as six to 10 months' production at current rates; because inflation often stimulates automation, and because half the revenues of American mainframe makers come from abroad, where DBL expects demand to grow in 1979 over its 1978 rate.

Taking Plessey's statements about the monies at their face value, City observers are bemused at Plessey's apparent short term intention to use the proceeds from the sale to reduce its debt, pointing out that the investment in ICL could have yielded as much as £11 million gross this year, as against the £4.5 million it will gain from reduced interest payments.

The suspicion remains in some quarters that Plessey made the sale primarily because it needed the money to bolster its cash flow.

From ICL's point of view, the sale will be by no means unwelcome. In the heady early days of the National Enterprise Board, when Tony Benn was Industry Minister, there might well have been pressure for the Government to buy the full Plessey stake. In the event, the NEB bought only enough to hold a 24.42% stake up to a recent level.

The possibility that Plessey might sell its ICL stake was raised at the annual figures last month. ICL chairman Tom Hudson then that he would much rather the shares go to private hands and single investors.

Similarly, Honeywell gets 62% of its income from the manufacture of controls and another 13% from defence contracts. Sperry Rand, parent of Univac, also has large non-computer operations, a farm equipment operation that brings it 32% of its income, and a hydraulics business that accounts for 15% of the profits.

Among the mainframers, IBM has the highest backlog, which the analysts put at 86% over last year's, and the highest proportion of its income from rental and service, 81%. Control Data, with a backlog that is now up by 28%, derives 51% of its income from rental and service. Burroughs, with a 15% increase in its order book, gets 44% of its income from rental and service.

However, the analysts point out, CDC gets more than half its income from business other than computers, mainly financing through its Commercial Credit group, and thus may actually be more vulnerable to a recession.

Plessey pulls out of ICL

● From front page.

growth but with the current government attitude, public money could also provide a possible source of investment.

On the office side Plessey has long been interested in a marriage between its own communications technology and ICL's computer technology, but exploration of the possibilities over several years led to the conclusion last year that there was no prospect of significant collaboration. Plessey therefore decided to sell the investment at a propitious time, and finally placed the shares with 125 City institutions at 415 pence a share, a discount of 28 pence on the ruling price.

Plessey chairman and chief executive Sir John Clark said this week that Plessey is thinking in terms of becoming an office systems house, buying in the elements of the automated office and configuring them into systems.

It already has a digital private telephone switching system, the Plessey PDX, built under licence from Rolm (CW, February 21, 1978). Orders for this already stand at £15 million, and Sir John has already halted the product as the cornerstone of an entry into the office systems market (CW, August 17).

Since then, the company has introduced Japanese digital facsimile machines to the UK market under an agreement with Matsushita of Japan, Visual Sciences of the US and their joint subsidiary Panafax.

Plessey is also as experienced as any UK company in writing software for the DEC PDP-11 minicomputer line, making it a straightforward task to put together a word processing system. The company could also acquire a US company in the office equipment field, although Sir John says that nothing is imminent.

USAF leases Scicon package

IN a deal which will further enhance the worldwide reputation of Scicon in the field of mathematical programming, the United States Air Force is to lease the company's Scicon/ic and MGG mathematical programming packages.

Under the contract, said to be sizeable, which was negotiated by Scicon's new US appointed agent in the US, Control Analysis Corp.

Other US federal agencies reported to be showing interest in the package...

COMPUTER WEEKLY, January 18, 1979 17

PERKIN-ELMER

DATA SYSTEMS NEWS

ISSUE NO1

The new big name in computers

As industry leaders in high performance minicomputer applications, Perkin-Elmer Data Systems, formed in 1976 as the new computer products group within the multinational Perkin-Elmer Corporation, is set for major growth in 1979.

Compec winner receives prize

Winner of the Perkin-Elmer "Fun in the Sun" Competition held at Compec 78, Mrs J. Broadley, Woolworth programmer from Rochdale, Lancs, receives her prize, a £600 holiday for two in Tenerife. The presentation is made by Gordon Ambidge, Marketing Manager of Perkin-Elmer Data Systems, with Tim Marlton, Northern Region Sales Manager.

The competition was for visitors to the Perkin-Elmer Stand, who were asked to enter their estimate of the total attendance at Compec. Mr Broadley gave an estimate of 28,567, closest to the actual figure of 28,558.

Interdata 7/32 selected for Eurobond dealing system

Stockbrokers Strauss, Turnbull & Co, who in addition to their normal United Kingdom and foreign business are also market makers in the Eurobond market, are implementing a new Dealing and Settlement System as the second phase of their recently commissioned computerised arbitrage price display and foreign exchange conversion system.

FIRST PHASE SUCCESS

The decision to buy the Interdata 7/32 follows on the success of the first phase, based on an 8/16E from

Perkin-Elmer Data Systems.

System design and application software for both phases have been undertaken by Triad Computing Systems Ltd, who selected an Interdata 8/16E with 128KB of memory and 10MB of disc storage for the application. The choice was made after careful examination of available hardware and was based upon the particular suitability of Interdata processors for multiprogramming and multi-terminal applications.

COST EFFECTIVE

Further considerations were the favourable cost/performance ratio and the ease of system expansion due to total upward compatibility in the Interdata range. The first system

went live in mid-1978 and proved to be an immediate success.

The proposed Eurobond System is a sophisticated one which will give immediate access (through the visual display units) to such information as clients' holdings of bonds, bonds in transit, outstanding deliveries, status of contracts and, most importantly, dealing prices and positions.

BRUSSELS LINK

Perkin-Elmer is also supplying ITAM (Interdata Telecommunication Access Method), which will allow the system to be linked with the Euroclear bond clearing computer in Brussels. Each day, all the relevant files holding Eurobond information will be updated to reflect Euroclear's actions.

Another large processor order from Link-Miles

A firm order for four Interdata 8/32 minicomputers with shared memory has been placed with Perkin-Elmer Data Systems by Link-Miles of Lancing, Sussex, one of the world's major flight simulator manufacturers.

STA HARRIER

These will perform the total real-time processing and control data function for the very advanced two motion flight simulator for the Sea Harrier under development by Link-Miles for the Ministry of Defence, which incorporates Link-Miles Advanced Simulation Technology (AST).

SUPERIORITY

Choice of the Interdata 8/32 for this system, which brings the total of 8/32's ordered by Link-Miles in the past 18 months to an impressive 13, was influenced by its acknowledged superiority in rapidly addressing very large areas of memory, unique shared memory capability and high reliability, coupled with Perkin-Elmer's valuable experience gained through similar involvement in the US-designed Harrier simulator for the US Marine Corps.

INTEGRATED SYSTEMS

Totally hardware and software integrated, all four Series Sixteen packages can be used for application work as soon as they are installed.

Fortran V11 outperforms its rivals

A globally optimizing Fortran for Interdata 32-bit minicomputers, Fortran V11 is compatible with both ANSI Fortran 77 standard X3.9-1978 and with IBM Fortran H.

The Fortran V11 compiler analyses all logical flow patterns and optimises globally over the entire program. Areas of optimisation include Constant Computation, Constant Propagation, Symbolic Arithmetic, Type Conversion, Array Linearisation, Invariant Code Motion, Strength Reduction, Test Replacement and particularly in-line code.

FLOATING POINT

The hardware floating point processor option supports single and Double Precision variables in addition to the computer allocates to general purpose registers and 16 floating point registers to user programs for the evaluation of expressions and temporary storage.

RUN-TIME LIBRARY

Fortran V11 programs are augmented by a comprehensive set of run-time library (RTL) routines. These include mathematical functions, language extensions, such as bit and byte operations, list processing operations and real-time extensions, such as external event interactions, analogue/digital conversions, multi-tasking and real-time task management.

HIGH SPEED

Also available is a high speed Fortran Enhancement Package (FEP) of mathematical functions which makes use of Writable Control Store (WCS), containing hardware microcoded arithmetic routines, which execute in less than half the time of the corresponding assembly language routines.

Major new 16-bit range launched

The new family of packaged systems from Perkin-Elmer, called Interdata Series Sixteen, is based on a new range of 16-bit processors and is designed for OEM's and system houses in the business and industrial marketplaces.

To quote Marketing Manager, Gordon Ambidge, "Series Sixteen provides high-technology, feature oriented systems that are available at low cost than existing products. It provides OEM's with flexible configurations, from entry-level to large memory systems, that can be tailored to specific application needs — and expand with the application".

processor has 128KB of 750ns MOS memory with ECC, 10MB of disc, floppy disc interface and matrix printer.

An enhanced operating system and a full suite of languages have been provided for the Series Sixteen family, as well as a full range of high-level data communications products to allow communications with large mainframe hosts.

The Perkin-Elmer name has been respected worldwide for 40 years in precision optics, instruments and other high technology products for all types of industry, for governments, medical institutions, universities and scientific laboratories.

Data Systems was formed when the computer industry was recognised by Perkin-Elmer as a logical area for expansion for a company dedicated to high technology.

TECHNICAL LEADER

As a first step, in 1974, Perkin-Elmer acquired Interdata, already established as a technical leader in minicomputers.

Terminals Division was formed when, following the success of the Carousel printer, it was decided to develop a complete range of video displays and printer terminals.

Later, in 1976, Perkin-Elmer acquired Wangco Inc, a leading manufacturer of mass storage devices, thus adding an interrelated and interdependent complement to Interdata's minicomputer line and Terminals Division's input/output terminals.

SINGLE SOURCE VENDOR

Thus, the integrated Data Systems Group offers customers the benefits of a single vendor for a broad line of computer products and complete systems with a background of major innovations, such as the first minicomputers with 32-bit architecture, Writable Control Store and Multiport Memory.

The Group is exclusively dedicated to continued advanced product development as well as innovations involving radically different technology concepts. With the fiscal strength of the Perkin-Elmer Corporation as a base, Perkin-Elmer Data Systems is able to grow from a position of unusual financial stability.

Publishers
Ginn & Company

who know how to read between the lines booked an

Interdata

transaction processing system for their sales order tracking from

PERKIN-ELMER DATA SYSTEMS
227 Bath Road Slough Berks Tel: Slough 34511
The new big name in computers

System 1615, priced at only £7,730, and aimed at distributed processing or small stand-alone applications, includes a Series Sixteen processor with 32KB of 900ns MOS memory expandable to 64KB, video display unit, page printer, memory processor integrity test and 512KB of floppy storage.

System 1624, priced at £12,220, offers a processor with 64KB of MOS memory expandable to 256KB and a 9P120 matrix printer, as well as all the other 1615 features.

System 1625, at £16,740, is aimed at multiterminal system applications and has 10MB of disc storage. An optional floating point processor is available.

System 1635, top of the range at £20,380, offers maximum performance and data integrity...

For further information contact ● Gordon Ambidge Slough (0759) 34511 ● Tim Marlton Manchester (061) 928 8713

Courses not available to many systems analysts

I AM in full agreement with the points raised by Owen Hanson in his article, Training of Business Systems Analysts (CW, December 14, 1978). Many systems analysts do not have a good general knowledge of the business environment. This is not surprising as the skills of programmers, systems designers and junior analysts, the steps on the career path to a system analyst, are technically rather than business oriented. The problem for the analyst is how to gain this knowledge.

It is commendable that the universities and polytechnics provide business analysis courses, but unfortunately these are not available to many analysts for the following reasons:

It can be difficult to be accepted on a post-graduate course without a first degree.

It can be very difficult to obtain the necessary financial support. Employers are reluctant to release staff for one to two year courses unless there is an immediate benefit to the company; expending job opportunities is not a company benefit. Few analysts are likely to be able to finance themselves (a consequence of the recent rise in university fees).

The location of the university or polytechnic may not be convenient so that part-time and evening courses are not suitable.

There is clearly a need for private study and correspondence courses available throughout the country. These could be supplemented by evening courses at colleges of further education or could be organised as post-experience courses by the Open University.

Some suitable courses do exist. There are correspondence courses for the BCS Part I and the Certified Diploma in Accounting and Finance, but I do not know of any course which covers the range of subjects included in the City University's MSc. Perhaps Mr Hanson could devise one.

JUDY COX
Consultant

F International Ltd,
Chesham, Bucks.

Wanted—information about SIR

WE are currently investigating the possibility of introducing the Scientific Information Retrieval, SIR database system at Imperial College Computer Centre.

If any readers of Computer Weekly have experience of SIR, I should be very grateful if they would contact me, so that we may learn of various aspects of its use.

Any information given to us would of course be treated as confidential.

ROBIN REES
Imperial College Computer Centre,
London, SW7 2BX

LETTERS

To: The Editor, Computer Weekly,
Dorset House, Stamford Street, London SE1 9LU

Conforming to Third Normal Form principles

I NOTICED Bob Dale's letter regarding the Fourth Normal Form referred to in Max Stewart's relational database series. (I especially noticed it because Bob Dale lives in the next street to me although I have never met him myself.)

Fourth Normal Form was first referred to in an article in the Communications of the ACM in 1978. I do not know how well this paper has been accepted internationally, but certainly in this country it has been subject to much criticism from those who advocate Third Normal Form.

As far as I am aware Fourth Normal Form arose from the fact that by applying the standard First, Second and Third Normal Form routines, one did occasionally obtain an answer which was not in Third Normal Form and hence a subsequent fourth iteration was required.

This Fourth Normal Form actually has all the properties of Third Normal Form. The need to analyse one's data prior to implementing any database management systems has been recognised for a number of years. The work of ANSI (Interim Report of the ANSI/SPARC Study Group on Database Management Systems, 1975), the BCS (BCS Data Dictionary Systems Working Party Report, 1977) and indeed our own methodology (Entity Analysis), have considerably evolved the techniques available to analyse one's data and to ensure that any subsequent design docs conform to Third Normal Form principles.

GEOFF BAKER
Chairman,
BCS Database Specialist Group
CACI Inc International,
289 High Holborn,
London WC1.

Secret desires

THE report by Chad on the secret desires of captains of the computer industry (December 21, 1978), prompts me to offer refuge to CW readers who, like the MD of Plessey Microsystems, play clarinet or saxophone. The Clarinet And Saxophone Society (CASS) welcome new members even from the computer industry — we're not proud. Further details from . . .

TREVOR BARNES
Computer Section
Trent Regional Health Authority,
Fulwood House,
Sheffield S10 3TH.

Ratio will rise

IN my initial article on IBM's 8100 (CW October 12, 1978), I was quoted as saying that a customer who used both operating systems could be paying as much for software as for hardware. Of course, few customers will be using both operating systems, and in fact the price load of announced program products should not average much over 18% of system price.

However, I do believe that over a period the software ratio will rise, and with eventual independent or IBM application packages, could reach 50%. Also, the ratio will likely be higher than 18% for those IBM systems to be announced shortly, which will utilise existing or enhanced S/370 program products.

GIDEON I. GARTNER
Oppenheimer and Co Inc,
New York.

Superior to older rivals

YOUR correspondent Mr Maddison (Software File, January) is correct in asserting that is technically possible to write interpreted versions of Fortran, Cobol, or Algol, although a lack of ordered structure in the latter language makes it doubtful whether an interpreted implementation would be really superior to the traditional compiled versions in that case. He is wrong, however, in believing that the superiority of Basic to these older languages rests on the existence of an interpreted version.

Basic, as implemented in modern minicomputers and microcomputers, is superior to older rivals for two main reasons:

1. It can, with minimal support, be self-taught, by avoiding the costly and time-consuming training programmes which more traditional languages need.

2. Being, fortunately, not subject to any artificially imposed external standard it is easier in accordance with the age and experience of practical, rather than being cribbed and confined within the bounds laid down by an academic committee.

Incidentally, one might note, which Mr Maddison gives as note can more efficiently written in the form

$$80 \quad N = N - SGN(ABS(X) - X)$$
$$90 \quad X = ABS(X)$$

This not only reduces the number of statements by one, but also avoids the use of a GOTO statement which, for some academic programmers, is objectionable.

E. W. WATSON
Consultant

Watford, Herts.

Computing in schools

IN reply to M. Bridger's critique of computing in schools (CW January 4), how can his idea of "a sound infrastructure of computer personnel" be built without computing expertise in schools where initial career decisions and subject choices are made?

Having introduced a microcomputer system into a school, my problem is always girls writing programs and getting them to leave the keyboard at a decent hour in the evening. All this has happened without formal teaching of computer science.

I have never seen pupils interested, self-motivated and creative as when introduced the machine and left to their own devices. How much, one may ask, is possible with adequate provision of hardware and staff development and staff coupled with an examination syllabus in schools? I am afraid of starting a losing battle with the advent of micros. Could £1,000 pupils will happily get experience already provided for them.

Our very limited staff have been a road block educationally, and has influenced several computer subjects. In introducing a 'rough calculation' and study of computing and colleges. Could money, which is being bought every year in the country of micro-output? Please, power where most future schools...

The November
Norwich NR...

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Candidates should be suitably experienced operators/trainees wishing to become actively involved in a progressive installation working normally on a 5-day two shift system. Experience of George 3 would be an advantage, although training will be provided.

The Joint Computer Unit provides the data processing requirements for both Bolton and Bury Metropolitan Borough Councils with a combined population of approximately 440,000. The hardware who have currently being reviewed, comprises an ICL 1905K (96K) under George 3 supporting a number of local and remote terminals, including 7602 and 7503 RJE system. Input is provided by Rackfast Key to Disc equipment.

Application forms from the Personnel Officer, Town Hall, Bolton. Telephone 323 01 Ext. 587 to be returned by 26 January, 1979.

CORNWALL County Council

Computer Installation

In an expanding development section a vacancy has arisen for an experienced

Cobol Programmer

£3,300 - £4,600 p.a.
(Salary at present under review)

Enthusiasm and a good knowledge of I C L software are prerequisites for this post and payroll experience would be an advantage.

The County Council has a 128K ICL 1904S operating under GEORGE 3 with an extensive communications network providing users with facilities varying from RJE to on-line enquiry systems.

Starting salary will take account of the successful applicant's experience.

Generous assistance will be given towards removal costs and other expenses; a flexible system of working hours is operated.

Application forms and further details can be obtained from The County Treasurer, Cornwall County Council, County Hall, Truro, Cornwall. Tel Truro 74282 ext 285.

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Our client, leaders in the field of COM equipment and a subsidiary of a well-known American-based company, have an urgent requirement for an Analyst/Programmer. Their Data Processing systems are designed around Microdata Reality hardware installed in Windsor, Paris and Frankfurt.

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* Capability to work on his/her own initiative.
* Effective communication skills.

In return, can expect

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Applications with full particulars to — The Group Personnel Manager, FMC Limited, 19/23 Knightsbridge, London SW1X 7NF.

D.P. MANAGER

United Merchants and Manufacturers (U.K.) Ltd.
Newlay, Leeds LS13 1EF
require

The Company is advancing from an IBM System 3 Model 10 installation to an IBM System 34 installation. Applicants must thus have gained sound practical experience of systems analysis and programming in RPG II over a period of not less than three years. Duties will include responsibility for the day-to-day running of the existing systems, development work and supervision of staff.

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Applications giving brief c.v. are to be sent to: Mr. S. Dean, Company Secretary and Treasurer.

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Professionals with practical experience of systems software work in the area of I/O handling, disc monitors, assemblers, or high level compilers will be especially interesting, as would people with industrial systems experience on minis or micros.

Programmers with specific experience of BASIC, or IBM 5110 machines, and comms people with an understanding of interface software, protocols, concentrators, emulators, etc. would be of particular interest.

No matter how little or how much your assembler and software experience, why not discuss your situation with me.

Contact Derek Pearson

Suit 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

THE BIG QUESTION

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In late 1979 a 2½ megabyte ICL 2960 under VME/B, linked to the region's major Power Stations via a comprehensive communications network, will replace the existing 1904S. An extensive range of development work is being undertaken with emphasis upon on-line applications.

Interested? Then write giving details of age, qualifications, experience, present position and salary, to the Regional Personnel Manager, C.E.G.B. North Eastern Region, Beckwith Knowle, Otley Road, Harrogate HG3 1PS, quoting either reference SVN/2/CW (Programmer) or SVN/3/CW (Analysts)

or phone Kathryn Duffield, Harrogate (0423) 703353 (Reverse charges), between 9.00 am-6.30 pm. Closing date 26 January 1979.